THE ELECTRIC RAILWAYS OF MINNESOTA

by
Russell L. Olson

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INTRODUCTION

In their time, trolley cars served well the transportation needs of a growing nation and the nature of this essential contribution has been recorded in a number of publications. Several excellent books have been written about the history and technology of the industry on a nation-wide basis; for example: *The Time of the Trolley* and *The Interurban Era,* both by William D. Middleton (Kalmbach Publishing Co.), and *The Electric Interurban Railways in America* by George W. Hilton and John F. Due (Stanford University Press).

Detailed histories of individual railways or regional groupings of railways have been published by individuals and organizations specifically devoted to the history and technology of electric railways. Thus substantial amounts of detailed information have been preserved which otherwise would have been lost. In this category of publication, very little has been published with regard to those electric railways that operated within Minnesota. It is the purpose of this book to fill that void.

In order to provide background for the reader who might be unacquainted with the electric railway industry, and to provide basic information without repetition, a brief discussion of the development and decline of the industry as a whole is presented.

Some form of urban public transportation became necessary to sustain continued growth of the nation's cities. The first street railway, utilizing horse drawn streetcars, began operating in New York City during 1832. As population growth gradually spread westward, additional cities introduced horsecar street railway systems. By 1881, 415 companies operated 18,000 horsecars over 3,000 miles of track. Despite horsecar system successes, animal motive power had serious disadvantages: average speed was a slow 5 to 6 miles per hour; derailments were frequent, operation in snow was difficult and gradients were a problem; horses were extremely expensive and 5 to 8 times as many horses as cars were required; horses were subject to an endless variety of ailments and due to the physical strain were useful for only 3 to 5 years; and manure created sanitation and disposal problems.

The first attempt to find a suitable means of mechanical power was the application of the steam locomotive to street railway service during the 1870's and 1880's. As the locomotives frequently frightened horses, they were enclosed by car bodies similar in appearance to horsecars; such locomotives were often referred to as "steam motors". One locomotive could pull one or more passenger trailer cars, an arrangement that proved to be more suitable for suburban service than for city service. Steam motor lines were constructed in a number of cities and they sometimes developed into important systems. To overcome growing objections to the smoke, soot, cinders and noise while operating within the city, several attempts were made to develop a "fireless" locomotive, all of which were impractical.

The most successful replacement for the horsecar in the 1880's was the cablecar, developed by Andrew S. Hallidie in 1873 for climbing the hills of San Francisco. This system utilized an endless cable made of steel wire rope, powered by a steam engine at a central power plant, which was pulled through a trough placed between the track rails below the street level. The cars were equipped with a special mechanism called a grip by which the operator could grip or release at will the constantly moving cable, thus allowing the car to be started, drawn along the street, or stopped at any point. Cablecars could surmount the steepest grades.

To provide a conduit for the cable, the rails were supported by a number of cast iron yokes, usually set in concrete. The cable ran through the openings formed by the yokes and was supported at intervals by rollers or sheaves attached to the yokes. The yokes curved inward to cover the top of the conduit and supported continuous steel rails that formed a narrow slot in the street pavement. One of the most intricate parts of the cablecar mechanism was the grip with which the car was attached to the cable. The cable itself was a wire rope of 1½" to 1¾" in diameter, usually consisting of six strands made up of 16 to 19 steel wires each; it was lubricated with linseed oil and a hemp center provided flexibility. The cable was guided around curves by arrangements of sheaves and pulleys, and reversed its direction at the end of a line by means of a huge horizontal sheave under the street. The cable entered the powerhouse at right angles to the track and was wound several times around a huge driving wheel 10' to 25' in diameter powered by a reciprocating steam engine. Before leaving the powerhouse, the cable passed around a large diameter vertical sheave mounted on a movable carriage; a counterweight attached to the carriage served to maintain constant tension on the cable and helped compensate for changes in length brought about by variations in temperature and load, or the age of the cable. Extensive cablecar systems were constructed in six major American cities during 1882 to 1884. The peak period of cablecar operation occurred in 1894 when 5,000 cable cars were running over 662 miles of track. The elimination of certain operating costs associated with animal railways made cable railways more profitable; the cablecar was much superior to the horsecar on lines of heavy traffic density, particularly in hilly cities. However, cablecar systems also had shortcomings: heavy initial construction costs (about $100,000 per mile); the complex underground equipment deteriorated rapidly because of the heavy weight of the cable; a substantial portion of the energy furnished by the powerhouse was absorbed by the moving parts of the system, again because of the heavy weight of the cable; vulnerability to a variety of mechanical breakdowns and accidents, most of them involving either the cable or the grip mechanism; and modest average speed of 9 to 10 miles per hour.

During the 1880's several experimental electric streetcar lines were constructed and operated for short periods of time. Two inventors, Leo Daft and Charles J. Van Depoele, produced electric streetcars that were successful enough to be placed in commercial service during 1885 to 1887. However the electric streetcar really developed from the work of Frank J. Sprague who solved several problems faced by the earlier inventors. He installed a complete electric railway system in Richmond, Virginia, during 1887 and 1888, overcoming formidable obstacles. This system was a great success and its technology quickly and completely accepted. This produced an electric railway construction boom that made electric streetcars king of the industry in less than 10 years. As of January 1, 1888, there were 21 companies operating 172 electric cars over 86 miles of track. By the end of 1889 there were 154 companies in operation with considerably over half of them equipped by the Sprague Electric Ry. & Motor Co. Another successful pioneering firm was the Thomson-Houston Electric Co., centered around the developments of Elihu Thomson. (Thomas Edison's Edison General Electric Co. absorbed the Sprague Electric Ry. & Motor Co. in 1890; the General Electric Co. was formed in 1892 by consolidating the Thomson-Houston Electric Co. with the Edison General Electric Co.)

As originally developed, direct current was generated at a central power plant by reciprocating steam engines directly connected or belted to electric generators. The positive terminal of the generator connected, through the switchboard, to the overhead trolley wire; the negative terminal connected to the track rails which were bonded. The trolley wire was not sufficiently large to carry the necessary current alone, so heavy cables, called feeders, were run from the power station on the overhead wire support poles, and tapped into the trolley wire at intervals along the line; return cables were used in connection with the track. Over long distances the main generators could not furnish sufficient pressure to make up for the large voltage drop in the feeders so motor-generator sets, called boosters, were developed, which were connected to the feeders in such a manner that the voltage they generated was added to that of the main generators. As ultimately developed, alternating current was generated by steam or water powered turbines in a central power plant and transmitted at high voltage through underground cables or overhead transmission lines to substations. At the substations stationary transformers stepped down the voltage, and either motor-generator sets or synchronous (rotary) converters changed the alternating current to direct current. Underground cables carried the direct current from the substations to the overhead feeders along the line, and from the rails back to the substations. The streetcars were equipped with electric motors mounted on the truck frames and geared to the wheel axles. The motor speed control device, called a controller, was located inside the car. Current collection was normally accomplished by a trolley pole containing an under-running wheel (which made contact with the overhead trolley wire) set in a spring-loaded swiveling base on the car roof. Other forms of current collection were the third rail (a current-conducting rail run alongside the track rails, contact with the car being made by sliding shoes) or open conduit (underground conductors run in a conduit connected to the car by means of a contact plow passing down through the slot). Thus the current passed from the overhead trolley wire, through the trolley pole, controller, motors, and car wheels to the track rails, completing the electrical circuit.

The extent of urban development was limited almost entirely by the operating radius of the street railway. The electric railway, relatively inexpensive to construct and operate, and faster than either the horsecar or cablecar, changed the character of the city. Streetcar lines established the pattern for growth within the city. Street railway properties became such lucrative investments that scores of eager promoters rushed to construct new lines. Ultimately almost every city of any size or consequence had an electric railway.

The remarkable success of the electric streetcar in urban service led to its use in rural and intercity operation. The term "interurban" was first used in 1890 to designate the intercity streetcar line between Minneapolis and St. Paul, and came to be used nationwide to denote intercity operations in general. The "interurban" changed the ways of rural life and brought in an era of inexpensive, fast, frequent transportation that created a new mobility. The interurban served chiefly as a local passenger carrier (for farmers and families making short trips into towns and cities for shopping and social visits, commercial travelers or villagers going from one town to another, pleasure travel, excursions, and special events) and light freight hauler.

Some interurban lines were constructed in the 1890's but most were built during two major periods: 1901 to 1904 and 1905 to 1908. A smaller amount of construction occurred after 1908, most of it west of the Mississippi River in areas of rapid population growth and/or inadequate transportation. By 1912, the interurban network as a whole had taken its final form.

Coincidental with the interurban electric railway construction boom, another development produced the self-propelled railcar, either gasoline-mechanical or gasoline-electric powered. These cars were developed primarily for lightly traveled steam railroad branch lines because of constantly rising operating costs and the competition from interurban electric railways. Many companies projected as electric railways were never electrified and instead operated these self-propelled railcars.

Streetcars operated by electricity obtained from storage batteries contained on the streetcar were used on

some short, lightly-traveled lines. They suffered from a severe limitation of speed and distance unless the battery was recharged or replaced frequently.

During the years before World War I, a tremendous growth in pleasure travel had taken place. This type of traffic was promoted vigorously by the industry's public relations men. Many companies constructed amusement parks on their lines, specifically located to require patronage of their cars to reach the park.

On the other hand, street railway companies were typically unpopular with local governments during most of their existence. They were often regarded with disfavor as monopolists and were constantly faced with the hostile attitudes of municipal officials.

By 1917 electric railway systems nationally had reached the peak of their physical expansion and had become a giant industry:

street railways	26,577 miles of track
interurban railways	18,100 miles of track
total	44,677 miles of track

The World War I period found the industry facing serious problems. Although mileage and traffic were still increasing, profits were decreasing. Most electric railways were confronted with an increasingly heavy tax burden. Labor and material costs were increasing rapidly but regulatory agencies were slow to increase fare structures. The motor vehicle was fast becoming a competitor that could no longer be ignored. The automobile had not been a serious competitor until after 1912 when its gradual development had reached a stage comparable to that of the streetcar 15 years earlier. As the number of automobiles increased rapidly, the urban transit industry was the first to feel the severe effects of widespread automobile ownership. Many smaller companies, city and interurban alike, were not only affected by the increases in costs, but also did not experience a gain in traffic from World War I conditions; consequently they were much more affected by motor vehicle competition. For such companies a marked downward trend in revenue and profit occurred during the 1915-1919 period.

The new motoring public created a demand for roadbuilding programs in the early 1920's. Interurban railways soon found that more and more of their passengers were driving automobiles over a new network of hard-surfaced roads. Most interurbans were so heavily dependent upon passenger traffic that baggage, mail, express, and freight were sideline activities. Many of the smaller companies, when they started to lose passengers to the automobile before World War I, began to regard freight traffic as a good area to recover lost revenue. Soon larger companies and those built exclusively for passenger traffic began to find that light freight and express traffic could be profitable. Freight traffic increased in volume steadily throughout the history of the interurbans until the late 1920's, and was responsible for whatever operations remained after the subsequent collapse of the industry. However in freight traffic as in passenger traffic the interurbans were best suited to perform what was least profitable and most susceptible to motor truck competition. (Trucks took from the interurbans mostly the high rate and the short haul traffic.) The least vulnerable type was the extensive carload freight business and the interurban trackage still in use today (operated mostly with diesel-electric locomotives) is that over which this type of business was successfully developed.

Throughout the 1920's, steps were taken to reduce operating costs and provide greater passenger comfort by development of improved equipment. Conversion to one man operation of trolley cars was accomplished by ordering new, improved cars and/or rebuilding older cars. Revenues and profits decreased more sharply during the early 1920's and the first abandonments of a major nature began. Buses were tested on lightly traveled outlying lines and proved so successful that the number of new buses produced increased rapidly during 1924-1925. Reasons for the success of the bus were: operating costs were low and no costly maintenance of track and overhead power systems was required; ability to pick up passengers at the curb; independence of fixed routings; and free "roadbed".

The late 1920's saw a rapid decline in financial condition for a large number of companies and extensive abandonments took place.

The trolley car was usually replaced by the motorbus and occasionally by a hybrid vehicle called the trolleybus. However, in a larger sense, the trolley car was really the victim of the automobile.

As the nation made a swift transition from mass transportation to private transportation, the street railway became increasingly superfluous. As a growing number of families took to the streets in their own automobiles, the demand became less and less for the high capacity mass transportation the trolley car provided. Operating companies soon learned that the motorbus provided a more economical way of transporting whatever traffic remained. Even if street railways had been financially able to build new extensions, they would have found it impossible to economically serve the scattered population characteristic of the automobile-oriented suburbs.

As business activity stagnated during the depression of the 1930's, freight and passenger revenues declined accordingly. Often there were insufficient funds for operating expenses, much less further improvements. For many companies the physical condition of track and equipment gradually deteriorated due to lack of maintenance until the last years of operation showed an almost unbelievably dilapidated state of track and equipment. By the early 1930's the trolley car had for the most part vanished from the smaller cities and even in the largest

cities the motorbus was playing an increasingly important role. During the 1930 to 1939 period, the remaining interurban trackage was nearly eliminated. The trolley car's greatest advantage was on routes of heaviest traffic and it was here that adequate revenues for operation and maintenance caused it to survive the longest.

The Electric Railway Presidents' Conference Committee organized in 1929 invested 5 years and $1,000,000 in a research effort aimed at the development of a radically new trolley car. From this resulted the technically advanced PCC car. The thousands of PCC cars placed in service from 1936 through 1951 were largely applied to this heavy traffic service and on many large city systems the trolley car seemed to have retained a permanent place.

World War II halted for a few years the decline of the street railway. Despite the superior qualities of the PCC car, the remaining street railway operations were becoming increasingly uneconomical. The decline in volume of traffic continued and fewer lines had sufficient patronage to economically justify trolley car operation. High fixed costs of maintaining track and overhead were spread over a fewer number of passengers. Growing traffic congestion made it almost impossible for the more expensive PCC cars (more costly than mass-produced buses) to utilize their superior earning capabilities. By the early 1950's the trolley cars were disappearing from most of the major cities.

The electric streetcar and the motor vehicle were first developed in approximately the same period of time. The trolley car rapidly developed to a high degree of technological excellence because the great number of street railways stimulated engineering development. The trolley car at first far outpaced its competitor only to have the motor vehicle surpass it and eventually destroy it.

"Celebration and barbeque" on the occasion of the opening of the electric streetcar line in South Superior, Wisconsin, September 14, 1892. (Gallagher Studios; Wayne C. Olsen collection)

CHARTERED
SAT. JULY
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JULY
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SECTION I
TWIN CITY RAPID TRANSIT CO.

"Twin City Lines"

Twin City Rapid Transit Co.
Minneapolis Street Railway Co.
Minneapolis Lyndale & Minnetonka Ry. Co.
St. Paul City Railway Co.
Minneapolis & St. Paul Suburban Railroad Co.
Minneapolis & St. Paul Suburban Railway Co.
Minneapolis Land & Investment Co.
North Side Street Railway Co.
St. Paul & Suburban Ry. Co.
St. Paul & White Bear R.R.
Minnetonka & White Bear Navigation Co.
Transit Supply Co.
Rapid Transit Real Estate Corp.
Twin City Motor Bus Co.

Minneapolis & St. Paul Suburban R. R. high-speed suburban car 1121 departing Stillwater (turning onto 4th St. from Myrtle St.) on a charter trip, July 18, 1912. (John Runk; Joe Hutchinson collection)

1. GENERAL HISTORY

The "Twin Cities" began as small villages ten miles apart, with open country in between. St. Paul, the older of the two, was incorporated in 1848 and became the capital when Minnesota was made a territory in 1849. The city received its charter in 1854. Situated at what was then the head of navigation on the Mississippi River, the city became a busy river port and trading center. The Fort Snelling military reservation, established in 1819, extended along the west bank of the Mississippi River to the Falls of St. Anthony. Consequently, early settlers established a community on the east bank of the river at the falls; named St. Anthony, the first house was constructed in 1848. However the federal government opened the lands west of the river for settlement in 1854. As St. Anthony Falls was a ready source of water power, lumber and flour mills were soon flourishing and the town that developed around them was named Minneapolis (water city) because of the numerous nearby lakes. The 1860 U.S. census revealed that the population of St. Paul was 10,401 persons, St. Anthony 3,258 and Minneapolis 2,564. Minnesota's first railroad was completed between St. Paul and St. Anthony in 1862. Minneapolis was incorporated as a city in 1867, merged with St. Anthony in 1872, and rapidly developed into a city of trade and industry, gradually surpassing St. Paul in area and population. However the two cities were the state's largest, and their proximity, similarity and friendly rivalry quite early earned for them the nickname "Twin Cities". As each city had originated and grown independently, so the street railway system in each developed separately. Unlike the two cities however, the separate transit systems eventually united into one well-managed enterprise.

Minneapolis Street Railway

There are various accounts, depending upon which history books one reads, as to the very earliest horsecar operations.

1. Dorilus Morrison, the city's first mayor, formed a company with four prominent businessmen and late in 1867 began to lay track on 2nd St. So. from Hennepin Ave. to Cedar Ave. Supposedly two horsecars and one steam motor were purchased from an Ilion, N.Y., firm. It is uncertain as to whether operations were ever begun. An 1871 newspaper editorial stated that the city's only streetcar was located on 2nd St. near the St. Paul & Pacific R.R. tracks deposited so it could gather dust out of the way.
2. In 1872 Col. William S. King operated six blocks of track on 3rd St. from 4th Ave. No. to 2nd Ave. So. using two horsecars.
3. Col. King constructed a line during 1873 on 2nd St. from Nicollet Ave. to Cedar Ave. It was not known whether any cars were actually operated but two horsecars had been purchased and were abandoned in a ditch near the Cedar Ave. end of the line.
4. Before 1872 a single track about eight blocks long connected the Northern Pacific Ry. yards with the Chicago Milwaukee & St. Paul R.R. yards at 4th Ave. So. with one mule car providing service.
5. A wooden track was laid on Hennepin Ave. across the suspension bridge in 1874 and one small car operated for a short period of time.
6. The Minneapolis St. Ry. was incorporated June 24, 1873 by Dorilus Morrison, Col. William S. King, R.B. Langdon, J.C. Oswald, W.W. Eastman, Paris Gibson, W.W. McNair, R.J. Mendenhall, W.P. Westfall and W.D. Washburn. (The last six persons named were also instrumental in organizing the Minneapolis & St. Louis R.R. in 1870, which by 1871 had completed a line from Minneapolis to a connection with the St. Paul & Lake Superior R.R. at White Bear.) In July, 1873, a steam motor was purchased at Ilion, N.Y., and a track laid on 2nd St. from Hennepin Ave. to nearly Cedar Ave. The enterprise collapsed (probably due to the financial panic of 1873) and the track was removed without ever having been used. After abandonment, all of the original incorporators with the sole exception of Col. King deserted the street railway enterprise.

Which version or perhaps combination of several versions, may be correct is uncertain. What seems most likely is that track was built on 2nd St. So. from Nicollet to Cedar and equipment purchased which was probably never used.

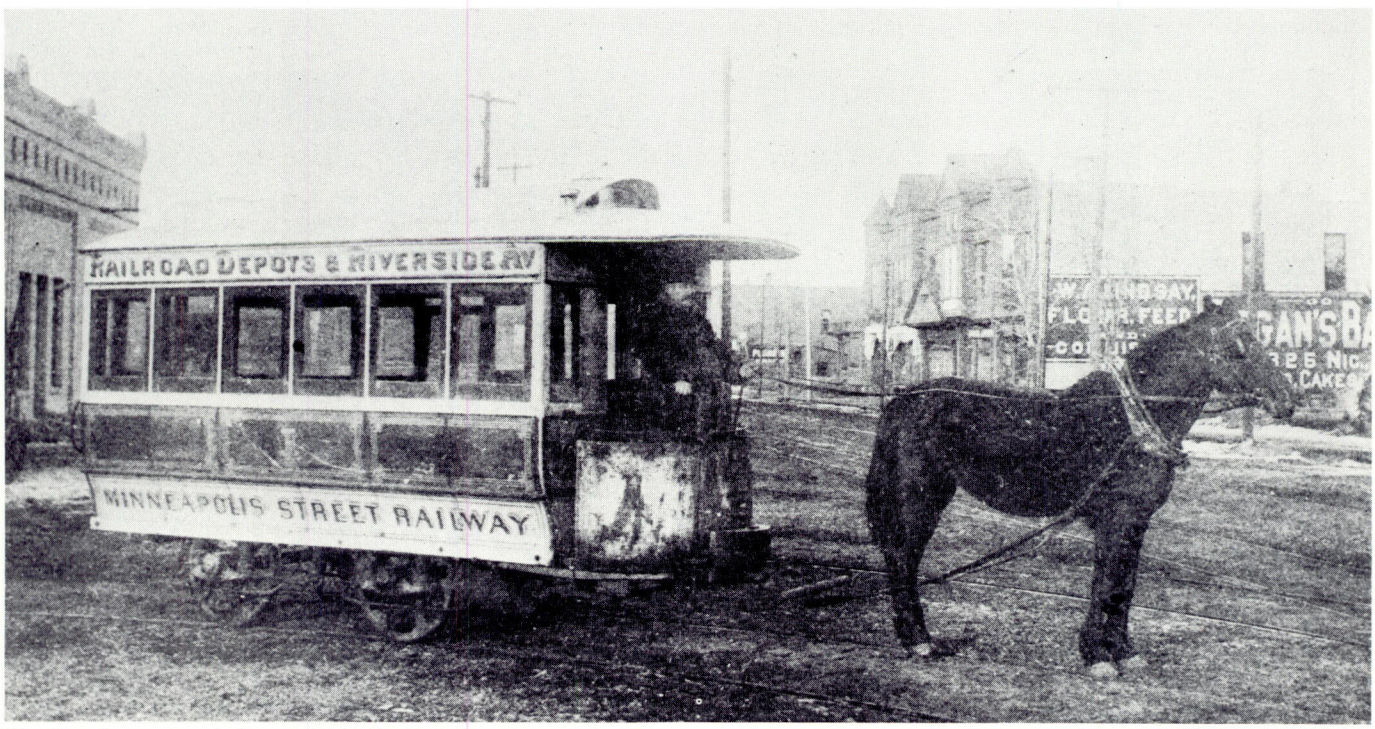
Col. King had arrived in Minneapolis during the summer of 1858. He purchased a printing press and in the spring of 1859 commenced publishing a weekly newspaper, the *State Atlas*. He was a dynamic newspaperman (noted for his editorials), instrumental in starting the *Minneapolis Tribune*, and became a large stockholder in the St. Paul *Pioneer Press*. Another source states he was one of the principal owners of the *Minneapolis Journal*. He also acquired 1400 acres of land around Lakes Calhoun and Harriet (which became known as the "Lyndale Farm") in 1868 and became largely responsible for the city's magnificent park system. The Colonel, a man of integrity, courage and foresight, clung to the hope of starting a street railway and finally secured the cooperation of Philo Osgood, James Tuckerman, Amos H. Prescott and a Mr. Dickerson, all of Ilion, N.Y., who knew of the abandoned enterprise (Philo Osgood had been elected President of Mpls. St. Ry. August 13, 1873) but retained faith in the necessity for some form of local transportation. In 1875 the conservative capitalists of

Minneapolis looked askance at the new proposal; nearly all had been early residents and could scarcely believe it possible that the time had arrived when a street railway system would pay a respectable annual dividend upon the large investment necessary to construct and equip it. However, a young lawyer and real estate dealer, Thomas Lowry, was attracted by the street railway proposal as a means of bringing the outlying areas, where he owned large amounts of suburban realty, within easy traveling distance of the business district of the city.

Thomas Lowry was born February 27, 1843, in Logan County, Illinois; upon completion of his education as a lawyer and admittance to the bar, he moved to Minneapolis, arriving in the summer of 1867. He established a law office in rented rooms over a store in a small wooden structure on the corner of 2nd St. and Nicollet Ave. A period of prosperous activity in the real estate market was in progress so he took on the purchase and sale of all classes of realty as a side-line. Soon he was more real estate dealer than lawyer. Possibilities of metropolitan greatness grew in his imagination and he began purchasing lots and acres in every direction. Gradually he became involved in financing through Eastern investors. The financial panic of 1873 operated disastrously in Minneapolis. Although real estate values did not decrease, there was no demand for property, especially residential lots in outlying areas. As the depression continued (1874 to 1877) Lowry's faith and confidence in the future led him to consider street railway transportation as a means of developing the outlying areas.

On July 9, 1875, the Minneapolis city council passed an ordinance granting Minneapolis St. Ry. a franchise for the construction and operation of a street railway system effective for 50 years from July 1, 1873. (Another source states the effective date was July 17, 1875.) The ordinance provided for two routes, the first to be completed within four months from the date of passage, and the other within one year. A meeting of the company directors was also held July 9, 1875, at which the following officers were elected: Philo Osgood (President), Thomas Lowry (Vice President), William S. King (Secretary) and James Tuckerman (Treasurer and General Manager). The reorganized company was capitalized at $250,000 and it was Thomas Lowry's task, because of his financial connections, to raise the funds.

The first horsecar line was completed and opened for service on September 2, 1875, which linked the principal railroad depot with the University of Minnesota and passed through the heart of the city. Service was established on a fifteen minute headway from 5:00 A.M. until 11:00 P.M., the hour the Pence Opera House and Market House entertainment activities were completed for the evening. This headway required five horsecars; six horses were needed for each car operated, working in relays during the operating hours. Speed was limited to 6 m.p.h. by the franchise ordinance.



The first horsecar of the Minneapolis St. Ry. as it appeared in 1891 at the 31st St. Station, Minneapolis (TCRT)

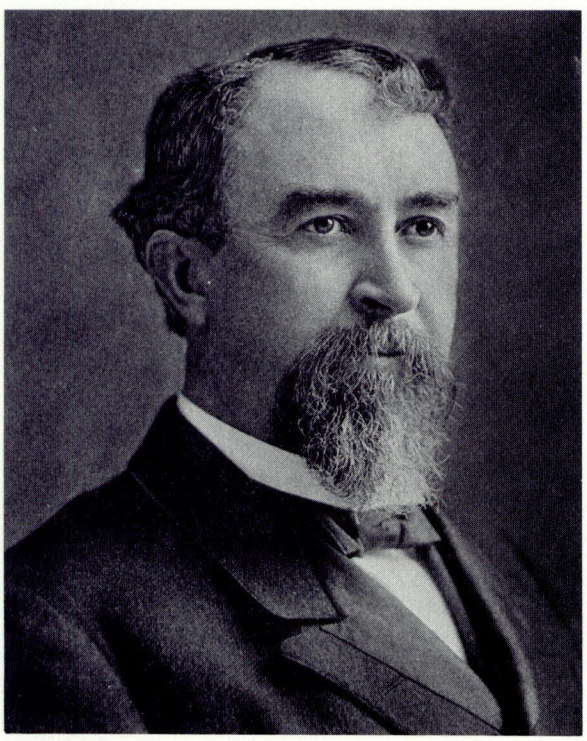
Thomas Lowry continued his real estate transactions but his continual efforts to establish confidence in the street railway company gradually became of primary importance. At times revenue was insufficient to allow the company to meet the payroll and workers were occasionally two to three months behind in receipt of their wages. Lowry became more and more convinced that the franchise was destined to be one of the more valuable in the nation. In 1877 he secured controlling interest in the company and was elected President. Lowry's brother-in-law, Calvin Gibson Goodrich, was hired as the company's bookkeeper. It was not long before he was promoted to superintendent of operations. At the election of officers held July 2, 1878, he was elected Secretary, and subsequently became Vice President and General Manager.

As one biographer stated later: "Minneapolis St. Ry. may be said to be a monument to Thomas Lowry and Calvin Goodrich, who from 1878 to 1915 were the generals-in-chief of its operations and responsible for its growth and development." Lowry managed the company and controlled the finances, while Goodrich superintended the operating and mechanical departments.

In 1879 the period of phenomenal business activity and growth of the city began. Minneapolis residents who possessed wealth still refused to believe the street railway venture would prove profitable and remained aloof, compelling Lowry to search for the necessary capital in Eastern money markets. It was this constant personal struggle to secure necessary funds which gave him extensive familiarity with top executives in the major financial institutions of the country. He was not a financier, but learned fast, and never hesitated to borrow all the money he could obtain to extend and improve the street railway and buy equipment for it. He believed in constructing in advance of the population and waiting for the traffic to slowly follow; this required a constantly increasing flow of money and financial resources to withstand long intervals of unprofitable operation. He pledged his own resources and credit to secure the loans and always saw to it they were repaid. It was also said there were few men who so combined modesty with successful achievement and democratic spirit with executive power as did Thomas Lowry.

Triumphing over almost insurmountable difficulties, involved in a mountain of debt incurred by his corporation, he optimistically fought his way toward the end which he had in view: the completion of the street railway system, its firm establishment, and a public service which would be unsurpassed by anything in the country. Through most of the company's subsequent history ran the golden thread of his clear foresight, indomitable energy, limitless resourcefulness, keen business acumen and abiding faith.

Contemporaneously with the street railway venture, Lowry was one of the incorporators and original directors of the Minneapolis, Sault Ste. Marie & Atlantic R.R. in 1883. This company constructed a railroad from Minneapolis to Sault Ste. Marie, Michigan (436 miles) during 1885 to 1887, connecting with the Canadian Pacific Ry. thus creating a through line to the Atlantic seaboard. W.D. Washburn was President of the "Soo Line" until he was elected U.S. Senator in 1889; he was succeeded by Lowry who held the office until his death. It was said that Thomas Lowry, W.D. Washburn, and Henry T. Welles formed a triumvirate that did the most for the advancement of the railway interests of Minneapolis.



Thomas Lowry

Calvin Goodrich

(Both photographs Minnesota Historical Society collection)

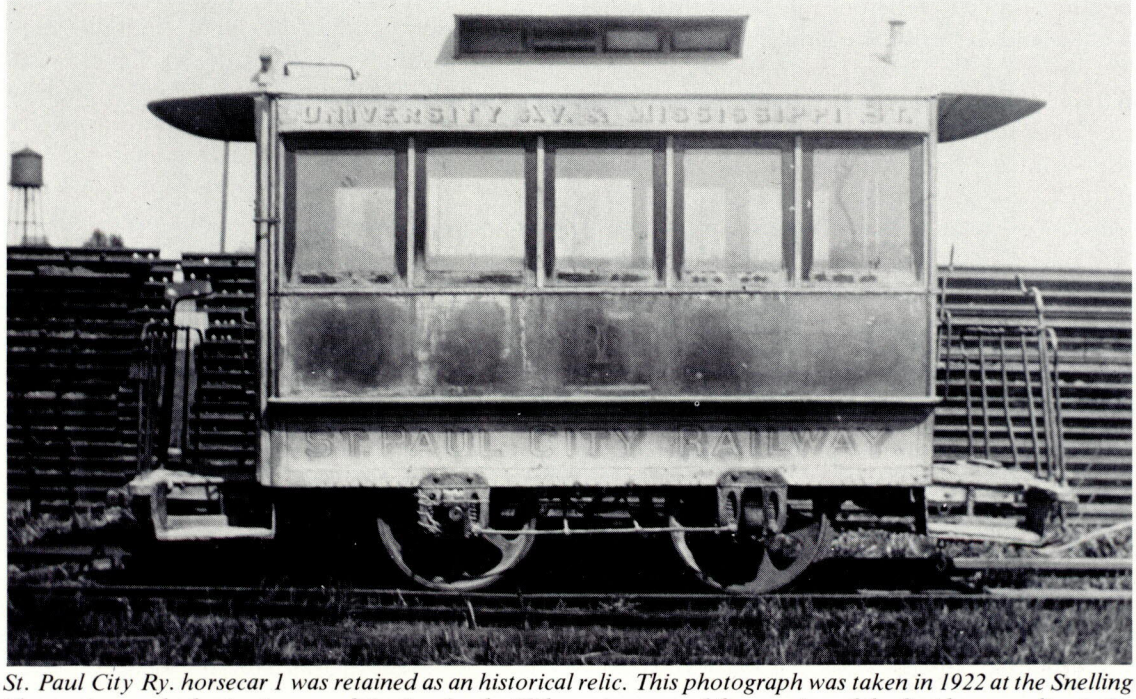
St. Paul City Railway Co.

On March 2, 1853, an act of the state legislature created in perpetuity the St. Paul and St. Anthony R.R. which was revived and continued on March 4, 1868, and February 29, 1872, under the new name of the St. Paul Street Railway Co. The SPSR was incorporated by J.W. Bass, J.C. Burbank, H.L. Carver, William Dawson, Warren H. Dean, Girard Hewitt, W.R. Marshall, Lafayette Shaw, Horace Thompson, John Wann and W.S. Wright. The first franchise from the City of St. Paul was received January 8, 1872, and the first horsecar line began operations July 15, 1872.

Shortly after the first line opened, W.R. Marshall and W.H. Dean purchased all of the capital stock. In 1874 Marshall purchased all of Dean's stock and became sole owner. In August, 1874, Marshall leased the company to the partnership of Shaw and McComb. McComb soon dropped out and Shaw operated the system alone until 1877. About 1874, mortgage bonds in the amount of $55,000 were issued, it being claimed that $110,000 had been invested in the system. Financial difficulties were the apparent reason for the numerous changes in ownership and the additional financing. Financial problems continued until payment of interest on the mortgage bonds was defaulted in April, 1877. The property was taken over at a sheriff's sale on September 28, 1877, by Thomas Cochran, Jr., as trustee under the mortgage; the mortgage holders were all Eastern investors who had instituted the foreclosure proceedings.

The St. Paul City Railway Co. was incorporated November 16, 1877, by the mortgage bond holders and the following officers were elected: A.H. Potter (President), W.H. Phillips (Vice President), W.G. Dommick (Secretary) and J.R. Walsh of St. Paul (Treasurer and General Manager). Mr. Cochran operated the company until completion of the foreclosure proceedings in October, 1878, placed the title to the property in the mortgage bondholders. Mr. Walsh took immediate charge of the system. The bondholders were not interested in continued ownership of the property and offered it for sale at a very low price — but no St. Paul men could be persuaded to purchase it. Mr. Walsh continued to operate the system and succeeded in putting it on a paying basis for the first time in its history.

In the spring of 1882 the eastern owners were bought out for $165,000 by a local group composed of Frank B. Clarke, Herman Greve, Arnold Kalman, W.R. Merriam and Ansel Oppenheim, each taking 20% of the stock. The group began to instill new virility in the property by extending existing lines, constructing new lines, and building new horsecar barns. In 1883 Greve and Oppenheimer purchased enough of Clarke's stock to give them controlling interest. The improvements cost considerable and insufficient revenue caused such concern that Thomas Lowry was approached with regard to taking over their investment. During 1884 Lowry and his associates purchased all of Merriam's stock, the balance of Clarke's stock, and enough of Greve's and Oppenheim's stock to give them control, although some eastern capitalists secured small stock holdings. Lowry's group secured full stock ownership of the SPCR on September 15, 1886.



St. Paul City Ry. horsecar 1 was retained as an historical relic. This photograph was taken in 1922 at the Snelling Shops storage shed prior to reconditioning for the 50th anniversary of the opening of the first horsecar line in St. Paul. (TCRT; Minnesota Historical Society collection)

Lowry and his associates became financially involved in the Minneapolis, Lyndale & Minnetonka Ry. which operated steam motor lines from downtown Minneapolis to Lake Harriet and Minnehaha Falls. On April 1, 1887, this property was leased to the Minneapolis St. Ry.

Lowry's associates were elected officers of the companies involved and their names appear frequently in the corporate minute books.

Minneapolis St. Ry.: Thomas Lowry, President; Calvin G. Goodrich, Vice President and General Manager, and E.H. Center, Secretary.

St. Paul City Ry.: Thomas Lowry, President; Calvin Goodrich, Vice President; A.Z. Levering, Secretary; and A.L. Scott, General Manager and Superintendent.

Cablecars

As a result of the publicity generated by the installation of cablecar systems in the larger cities of the country, a joint delegation of representatives from the Minneapolis and St. Paul city councils visited Baltimore, Boston, Cleveland, New York and Philadelphia during 1887 at the expense of MSR and SPCR to investigate the best systems of cable railways. They also visited Richmond, Virginia, to evaluate and obtain data on the newly completed electric railway designed and installed by Frank J. Sprague.

The St. Paul city council subsequently applied pressure on SPCR to utilize cablecars to climb the hilly terrain out of the business district thereby gaining more direct and less roundabout line routings. The climate was the most severe in which cable technology was to be attempted portending engineering problems due to the considerable expansion and contraction of the yokes plus accumulation of ice and snow in the conduit. Clift Wise of Kansas City was hired to design the installation and supervise the construction of two cablecar lines: the Selby Avenue line, which was completed in December, 1887; and the East 7th Street line, completed in June, 1889. The cost to SPCR was staggering: to cover construction costs and refinance existing debt, Cable Consolidated Mortgage 5% Bonds in the amount of $3,708,000 were issued due fifty years later (1937). In 1937 $2,208,000 was paid off when due but the remaining $1,500,000 was extended over ten years with $150,000 to be paid off each year. The East 7th Street line had been electrified in 1893 and the Selby Avenue line electrified in 1898!

In 1888 there was an effort on the part of outside capitalists to secure an opposition franchise from the City of Minneapolis. Anderson and Douglas were their agents backed by a large number of Minneapolis citizens. The city council was petitioned for an electric railway franchise. After numerous meetings, hearings and investigations, including a review of MSR's franchise, the council passed a resolution on July 19, 1889, directing MSR to construct three cable lines. MSR did not believe that the cable railway, or any new motive power, had been demonstrated to be a practical success and therefore the time was not ripe for making any radical changes necessitating heavy expenditures. (Minneapolis terrain is generally flat or gently undulating so there was no real justification for cable railways here as there was in St. Paul.) However MSR agreed with the terms of the resolution under pressure and placed orders for specially designed steam engines as well as a large quantity of track and track materials

The three Minneapolis cable lines were to be constructed on:

1. Washington Ave. from 20th Ave. N. to Cedar Ave. S., to be completed by November 1, 1890.
2. Bloomington Ave. from 32nd St. to Franklin Ave., to 8th Ave. So., to 4th St., to 1st Ave. So., to High St., to be completed by November 1, 1891.
3. Hennepin Ave. from Lyndale Ave. to Central Ave., to 6th St. S.E., to 3rd Ave. S.E., to Harrison St., to 29th Ave. N.E., to be completed by April 1, 1891.

Subsequent resolutions of the city council in August and September, 1889, required additional cable lines:

4. Loop line on 1st Ave. So., High St., Hennepin Ave., and Washington Ave.
5. Extension of the first line on Cedar Ave., Riverside Ave., and 27th Ave. So. to 26th St.
6. 1st Ave. So. and Nicollet Ave. from High St. to 31st St.

On all of the cable lines double track (4'8½" gauge) was to be laid throughout to the most approved plan with the best materials; Providence girder rail was to be used; the slot opening was not to exceed ⅝", and the speed was to be not less than 8 m.p.h. Plans developed by Clift Wise provided for a powerhouse at 3rd Ave. N. and 2nd St. N. which was to power two cables each, through conduits, for the Washington Ave. and Hennepin-Central lines; a low speed cable would be used for counter-clockwise operation of the High St. loop line. The Nicollet Ave. line was to be run from a separate powerhouse located at 31st St. and Nicollet Ave.

Construction started on an addition to the existing building at 3rd Ave. N. and 2nd St. N. to contain the boilers and engines. Construction also started on the powerhouse building at 31st and Nicollet. (Perhaps the building at 32nd St. and Bloomington Ave. which became an electric car station may have originally been intended for cablecar purposes.) As the track and cable materials which had been ordered were received they were stored at three locations: (1) the old Hay Market on 1st St. between 1st Ave. and 3rd Ave., (2) along the route of the 1st Ave. So. line to 31st St., and (3) along the C.M. & St. P. R.R. right-of-way on 29th St. Some actual track construction work was undertaken during the winter on the 1st Ave. So. line in the vicinity of Grant St. and Nicollet Ave. although the steam trains continued in operation.

Meanwhile, both MSR and SPCR were investigating electric railways and in September, 1889, received permission from the respective city councils to install experimental electric lines. MSR's line was the first to be completed, in December, 1889; MSR was so pleased with the operation in winter weather compared to the St. Paul cable lines that it moved rapidly to convert the Minneapolis franchise from cable power to electric power, and was able to convince the city council accordingly in January, 1890. All cable engines and track materials were sold as scrap several years later, but the buildings were completed and used as part of the electric railway system. Reports vary as to the amount spent on the cable line materials and equipment that were never used: Frank Trumbull in 1893 reported $300,000 to $400,000; Mr. Cappelen in his 1916 valuation stated that approximately $200,000 to $300,000 was claimed to have been invested.

Electrification

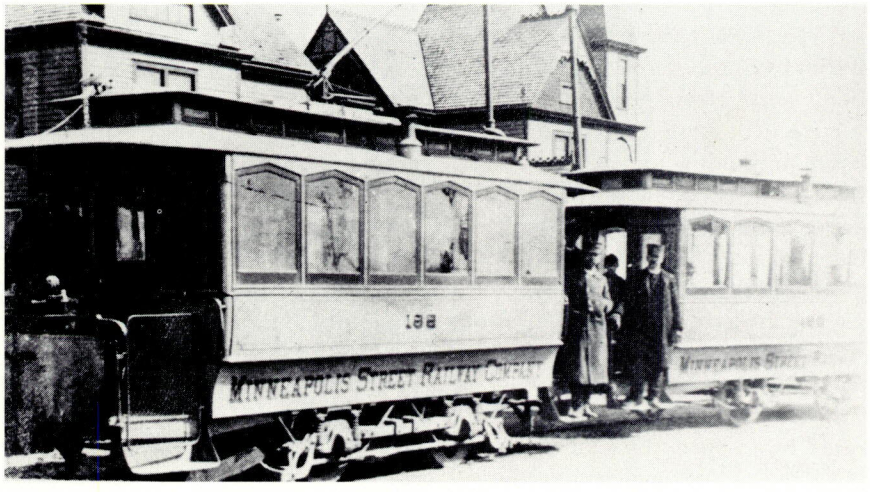
Thomas Cochran and Archbishop Ireland had approached Lowry in the spring of 1889 and asked SPCR to construct several electric lines in St. Paul. Lowry was skeptical as to whether electricity had become practical for street railway purposes; he finally agreed in June to build and equip two electric lines provided the SPCR was protected from loss:

1. from 7th St. and Wabasha St. on 7th St., Oakland Ave., and Grand Ave. to Grand and Cleveland.
2. from 4th St. and Wabasha St., on 4th St., 7th St., and Randolph Ave. to Randolph and Cleveland Ave.

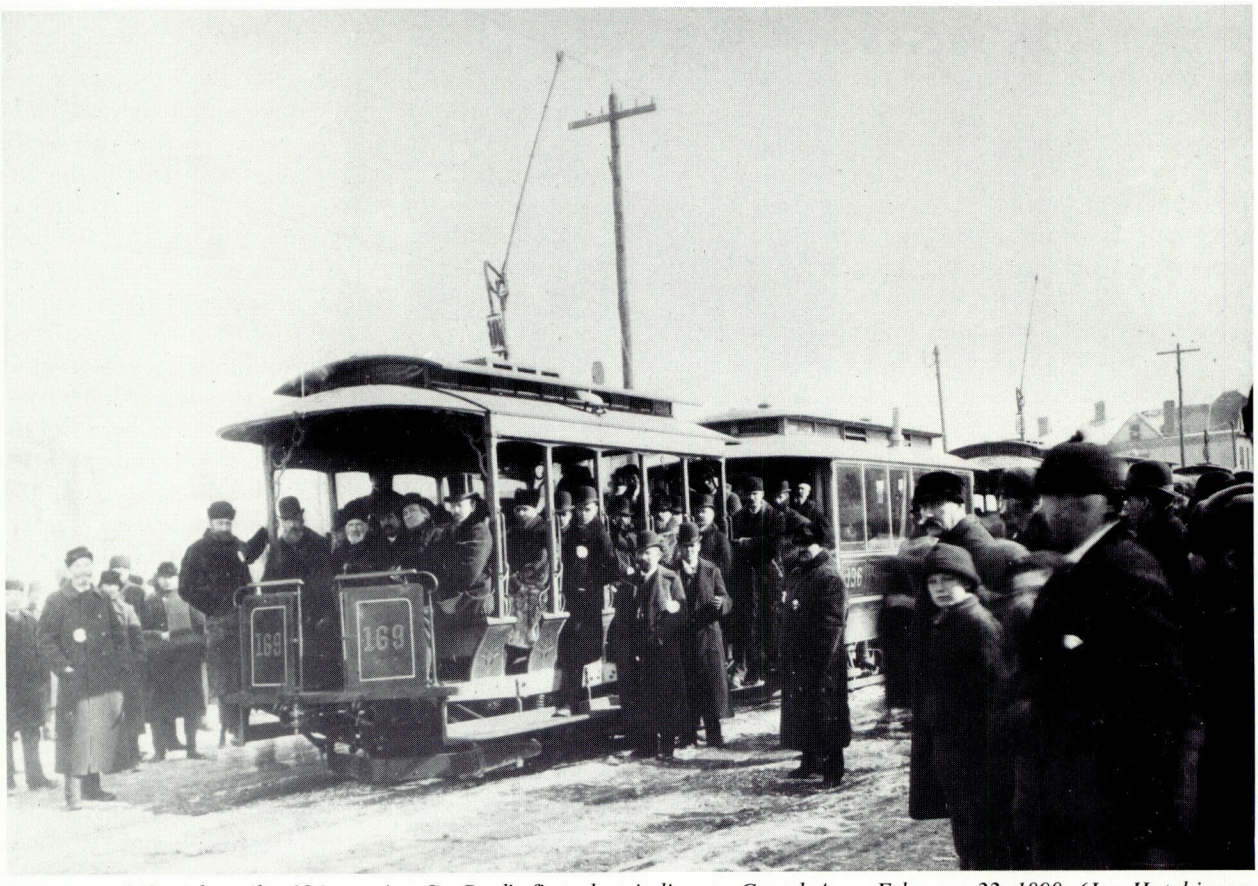
SPCR agreed to have the first line running within six months providing a bonus was raised and paid to the company in installments extending over a nine month period beginning with the laying of rails. As SPCR's charter did not allow anything but horsecar operation, an ordinance was introduced to give SPCR the right to use electricity. As several competitors had applied to build competing lines, this ordinance precipitated a lengthy dispute between SPCR, competitors and city council. Finally, on September 19, 1889, the city council passed an ordinance granting SPCR the right to operate all of its lines by cable, electric, pneumatic or gas power at the option of SPCR. Construction then began on the Grand Ave. line.

The Minneapolis city council had reserved the right to designate one of the existing horsecar lines upon which MSR should experiment with electricity as a motive power. If proven a success, MSR could be ordered to operate in the same manner any other lines designated by the council. MSR was required to post a $25,000 bond to be forfeited if construction was not completed as specified. A resolution was passed September 14, 1889, authorizing MSR to string overhead wires on its 4th Ave. So. line and required operation of this route as a test of electricity. (The Thomson-Houston Electric Co. submitted a proposal to MSR to build and equip one complete electric railway line at its expense. After it had been demonstrated an assured success MSR would purchase it at a fixed price.)

Minneapolis' 4th Ave. So. line was opened in December, 1889, and St. Paul's Grand Ave. line in February, 1890. The results were so successful that electrification of the entire Minneapolis and St. Paul systems was proposed. In January, 1890, the Minneapolis city council first approved electric operation on any lines MSR might choose; electrification of certain lines was thus begun. On September 19, 1890, the Minneapolis city council passed an ordinance ordering all horsecar lines to be electrically operated; MSR immediately placed contracts and orders for a large amount of electrical machinery, apparatus, rails and cars necessary for complete electrification of the system. SPCR was authorized to electrify its entire system and agreed to build and electrify 32.4 miles of new double track additions during 1890 and 1891.



Motor car 188 pulling trailer 190 on the "4th Ave. So." line, Minneapolis' first experimental electric operation, in December, 1889 (Edwin H. Nelson collection)



Motor car 169 with trailer 136 opening St.. Paul's first electric line on Grand Ave., February 22, 1890. (Joe Hutchinson collection)

Formation of the Twin City Rapid Transit Co.

The horsecar lines had scarcely been completed when the work of electrifying the entire system began. Unprofitable horsecar operations, plus the heavy cost of experimental cable lines made unusually difficult the project of financing the conversion to electricity. Both companies had never paid their stockholders any dividends, any profits having been re-invested in expansion, improvements and better service. The conversion to electricity required complete re-construction and resulted in the loss of most of the original (horsecar system) investment. Street railway securities at this time were of dubious value; their worth depended not only on efficient management but also on the growth and prosperity of the community. During electrification the opportunity was taken to greatly expand the track mileage (almost 100%) into new areas where no previous settlement existed; in addition the two systems were physically joined in December, 1890, with completion of the Minneapolis-St. Paul "Interurban" line on University Ave. All this imposed enormous financial burdens and created a financial crisis; the total cost of electrification in both cities totaled $6,000,000 instead of the original estimate of $2,500,000. Thomas Lowry went to New York in early 1891 to arrange loans for each company. Separate loans were not forthcoming; but when he convinced some banking interests of the earning power of a combined system serving over 500,000 persons it was suggested that if the two companies were combined he would be given a loan. As a result the Twin City Rapid Transit Co. was incorporated in New Jersey on June 3, 1891, for the purpose of acquiring the capital stock of MSR and SPCR in exchange for TCRT capital stock. TCRT was to be a holding company while MSR and SPCR would be wholly owned subsidiary operating companies. Effective January 1, 1892, the two companies began operation as a consolidated system under TCRT control.

By the fall of 1892, electrification had been completed. At the request of Kuhn, Loeb & Company, New York City, Mr. Frank Trumbull of Denver inspected the Minneapolis and St. Paul systems and made a detailed written report. A copy of this report, dated January 18, 1893, has been located and much of the data used in other sections of this book. The consolidated balance sheets of MSR and SPCR at December 31, 1892, are rather interesting and deserve inclusion here.

Assets	
Right-of-way	$ 9,040,000
Road and Equipment	14,208,422
Current Assets	451,015
Total	$23,699,438
Liabilities and Net Worth	
Capital Stock	$10,000,000
Funded Debt (MSR)	6,097,100
Funded Debt (SPCR)	6,197,500
Current Liabilities	712,633
Surplus	710,204
Total	$23,699,438

Mr. Trumbull's summary stated that he considered this property the finest he had yet examined; in his opinion it was the best at present, of its kind, in the West.

The company felt that the time had arrived when it might reap the benefit of increased earnings and be able to pay off some of the heavy indebtedness which had been incurred. But the financial panic of 1893 occurred with the result that the company's earnings did not increase as had been expected, but in common with general business at the time, suffered greatly. It was almost impossible to obtain sufficient money from the earnings and the company's limited borrowing capacity to keep things going and maintain the extensive service which had been established with electrification of the system.

Frank Trumbull, on a second visit in 1894, advocated conversion of the Selby Avenue cable line to electricity with the exception of the portion on Selby Hill. However, coincidently with the slump in business due to the financial panic, the company had to contend with severe bicycle competition during 1893 to 1896 which further cut into the earnings.

During 1896 the City of Minneapolis paved the streets in the business district. 43.6 miles of track built during 1891 had to be replaced with more substantial construction because of the type of pavement selected. The interruption of service caused by the construction work resulted in loss of business which together with the costs of track rebuilding created additional financial burdens for the company. It was nearly impossible to borrow additional money for the construction work; only by enforcing rigid economies and close figuring of expenses was the company enabled to succeed in paying the costs.

The Formative Years

The period from 1898 to World War I saw the greatest growth and expansion of the system as well as the "golden era" of streetcar transportation. The first major steps forward occurred in 1898-1899 when: the second line connecting Minneapolis and St. Paul was completed, the "Como-Interurban-Harriet" line; the Selby Avenue Cable line was electrified and a counterweight system installed on Selby Hill; the program of designing and constructing streetcars in company facilities was begun, and acquisition of the former St. Paul & White Bear R.R. line from St. Paul to Mahtomedi (including Wildwood Park on White Bear Lake) resulted in: (1) extension of the line to Stillwater, (2) construction of the Stillwater street railway system, and (3) formation of the Minneapolis and St. Paul Suburban Ry. as a wholly owned TCRT subsidiary to own and operate lines outside the Minneapolis and St. Paul corporate limits.

TCRT also began paying dividends on common stock in 1899. Officials of TCRT responsible for this growth were now: Thomas Lowry (President), Calvin Goodrich (Vice President, Secretary and Treasurer), Willard J. Hield (General Manager), J.F. Calderwood (Comptroller), R.C. Taylor (Master Mechanic), R.L. Costigan (Storekeeper-Purchasing Agent), Edward Scofield (Chief Electrical Engineer), and George L. Wilson (Engineer and Roadmaster).

A fire in the storehouse-office building at the 31st St. Shops resulted in the destruction of many of the company's early records. An auditor's certification to a company financial statement commented that records on Investment in Road and Equipment for the period prior to January 1, 1900, were not available, and for the period January 1, 1900 to December 31, 1903, were incomplete.

The next period of expansion occurred during 1902 through 1907 when the following was accomplished: the new Main Steam Station and A.C. power distribution system were completed; new office buildings constructed in Minneapolis and St. Paul; new extensive shop buildings and facilities constructed at Snelling and University Avenues in St. Paul; the third line connecting Minneapolis and St. Paul was completed (the "Selby-Lake" line which included construction of the Selby Tunnel replacing the counterweight on Selby Hill); acquisition of the independent suburban St. Louis Park and Robbinsdale lines by the Minneapolis & St. Paul Suburban Ry.; extensive new track construction in both Minneapolis and St. Paul; improvement of Wildwood Park, construction of the branch line to White Bear, and extension of the Stillwater street railway system to South Stillwater; and construction of the interurban line to Lake Minnetonka, including the building of Big Island Park, purchase of the Lake Park Hotel, and construction of the steamboat fleet for operation on the lake.

TCRT officers during this period were: Thomas Lowry (President), Calvin Goodrich (Vice President and Managing Director), E.S. Pattee (Secretary and Comptroller), E.A. Crosby (Treasurer), W.J. Hield (General Manager) and D.J. Strouse (Auditor).

Although Thomas Lowry lived to see his confidence justified and his enterprise successfully established, the satisfaction this fulfillment gave him was not to be long enjoyed. He had to battle a disease which persistently followed him the greater part of his life. After an extraordinary and prolonged defense, he surrendered to the inevitable, dying on February 4, 1909.

Calvin Goodrich was then elected President and Willard J. Hield Vice President and General Manager. Mr. Goodrich continued his predecessor's policies. He had closely studied the transportation needs of the two cities and suburbs, looking for future opportunities and possibilities and seeking the careful organization and steady expansion needed to make the system of real public worth and value. He had long been recognized as one of the most forceful business executives in Minneapolis. Elected President of the Duluth-Superior Traction Co. in 1900, he was largely responsible for the development and management of that system as well. His only child, son Donald, eventually became General Superintendent of TCRT.

The fourth interurban connecting Minneapolis and St. Paul, the "Snelling-Minnehaha" line through Fort Snelling, was completed during 1909. Certain corporate changes were undertaken during 1910 and put into effect January 1, 1911. The Minneapolis & St. Paul Suburban Railroad Co. and the Minnetonka & White Bear Navigation Co. were incorporated in March, 1910, as wholly owned TCRT subsidiaries. Property, franchises and equipment of the Minneapolis, Lyndale & Minnetonka Ry. and the Minneapolis & St. Paul Suburban Railway were deeded to the new corporations, railway operations (including the terminal docks at Excelsior and Wildhurst) going to the Minneapolis & St. Paul Suburban Railroad, and the steamboat lines, park, hotel, restaurant and amusement enterprises on Lake Minnetonka and White Bear Lake to the Minnetonka & White Bear Navigation Co. Later in 1911 the Transit Supply Co. was incorporated to act as a fiscal, purchasing and stores agent for all the other corporations; as such it performed all accounting and financial services, engineering, purchasing and storekeeping, and operation of the Snelling shops.

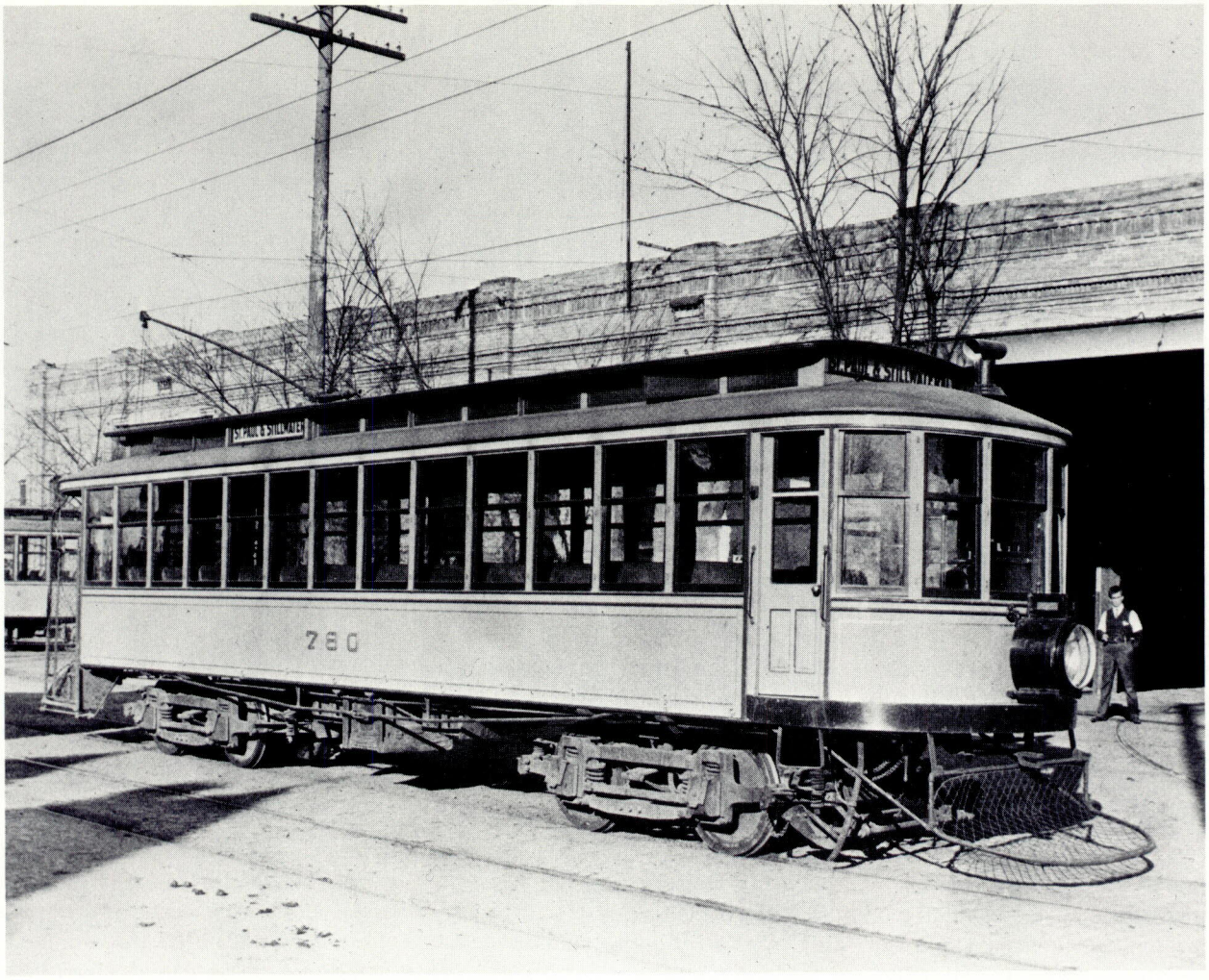
Thomas Lowry had married Beatrice Goodrich, the daughter of Dr. C.G. Goodrich. Son Horace was born February 4, 1880, and after graduation from the University of Minnesota in 1900 worked the next two years as an electrician in the shops of the Minneapolis St. Ry. The following year was spent in the auditing department of MSR where he became chief clerk. He then left MSR to manage his father's real estate and other business interests, but in 1908 returned to MSR as Superintendent of the Minneapolis Division. Again he left MSR, resigning in December, 1910, to become President of the Arcade Investment Co. which proceeded to erect the 12-story Lowry Building in downtown St. Paul. On January 1, 1912, he was elected General Manager of TCRT and exactly one year later 1st Vice President. At this point in time the officers of TCRT were: Calvin Goodrich (President), Horace Lowry (1st Vice President), John R. Mitchell (2nd Vice President) A.M. Robertson (3rd Vice President-Secretary, and President of Duluth-Superior Traction Co.), E.A. Crosby (Treasurer) and D.J. Strouse (Auditor).

Calvin Goodrich attended a meeting of the TCRT Board of Directors in New York December 6, 1915, and contracted a severe cold, the resulting complications terminating his life on December 21, 1915. Horace Lowry was elected President January 1, 1916, and E.W. Decker 1st Vice President. Under Horace Lowry's administration the high standards of service were continued, interests of the company conducted on constructive and progressive bases, further development of the system carried out, and greater efficiency attained.

Although in terms of miles of track and number of cars operated the system had not yet reached its zenith, this period marked the beginning of the end of the "romantic" era of the streetcar. World War I was in progress and things would never be quite the same after the war ended. The first item of importance undertaken was an adjustment of the franchise relations with the City of Minneapolis. This involved a complete valuation of Minneapolis St. Ry. as of January 1, 1916; the Minneapolis city engineer, F.R. Cappelen, conducted the study, with A.L. Drum & Company, consulting engineers of Chicago, representing MSR.

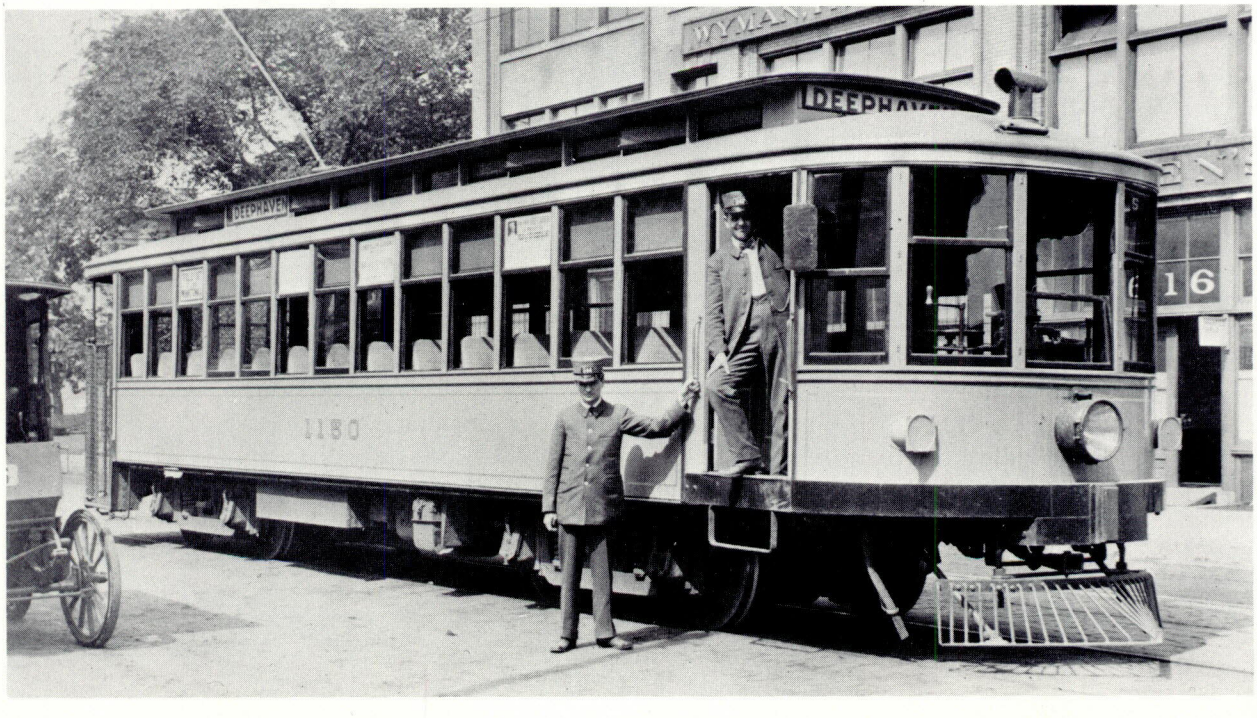
According to TCRT's 1918 annual report the company was forced to economize operations; cost of materials had increased 40% to 200% and wages 60%, but gross earnings had declined due to the lack of commercial prosperity (very few war contracts were obtained by local industries) and a flu epidemic. A contract was made for opening a coal mine in Illinois so that the power plant coal could be obtained at the cost of production. The company also purchased several motor buses which had been operated by competitors and began running some of them in north Minneapolis on a newly opened and paved street on which no streetcars were operated. This was TCRT's first bus operation. Officers responsible for management of

Horace Lowry (Minnesota Historical Society collection)



A 1904 view of car 780 equipped for service on the "St. Paul & Stillwater" line, complete with a Wagenhal's headlight. The car is eastbound on the westbound track in front of the 7th St. Station, St. Paul. (Sweet Studios; Minnesota Historical Society collection)

High-speed suburban car 1150 on the "Deephaven" line of the Lake Minnetonka Division, taking layover time on 1st Ave. N. between 6th and 7th Streets, Minneapolis. (Minnesota Historical Society collection)



the company during these years were: Horace Lowry (President), E.W. Decker (1st Vice President), J.R. Mitchell (2nd Vice President), A.M. Robertson (3rd Vice President and Secretary), Foster Hannaford (General Manager), W.D. Dwyer (General Counsel), E.A. Crosby (Treasurer), D.J. Strouse (Auditor), J.J. Caufield (General Superintendent), A.W. Warnock (General Passenger Agent), Wm. Whiteford (Purchasing Agent), E.H. Scofield (Engineer of Power and Equipment), Walter J. Smith (Master Mechanic), George L. Wilson (Engineer Maintenance of Way), H.W. Ralph (Schedule Superintendent) and P.J. Metzdorf (Park Superintendent).

MSR negotiated a service-at-cost franchise with the City of Minneapolis but this was defeated by the voters. The City of St. Paul was considering amending their franchise with SPCR. All these moves took place in 1919 as TCRT was trying to obtain additional revenue to offset increased costs. The First Mortgage Bonds of the Minneapolis Lyndale & Minnetonka Ry. totaling $5,000,000 matured January 15, 1919, but payment had to be extended over an additional three years.

The Rapid Transit Real Estate Corporation was incorporated during 1919 to acquire and hold title to various parcels of real estate owned by the various subsidiary companies but not used in the operation of the street railway system. This included land held for right-of-way or terminal purposes not at present directly useful for the operation of the railway property although in some instances it had a direct connection therewith. It also owned the gravel pits in St. Paul and South St. Paul which supplied gravel for construction and maintenance work on the entire system.

During 1920 substantial service increases were requested by Minneapolis and St. Paul and the company succeeded in obtaining emergency fare increases. TCRT was in hopes that the Minnesota legislature would enact a law containing provisions to establish the fair value of the property upon which the company would earn a reasonable rate of return. Until this time each system was under the control of the respective city councils thus creating many problems and differences. Also, the Minneapolis franchise was to expire on July 1, 1923. On April 29, 1921, the legislature passed the Brooks-Coleman law providing that the companies would operate under indeterminate permits granted by the state. Permits were to continue in full force and effect unless and until the cities would acquire the property within their corporate limits, or unless terminated or modified by the state legislature. The Minnesota Railroad and Warehouse Commission was given exclusive power and authority to establish rates of fare and exercise control over suburban portions outside the city limits; the individual city councils retained control over operations and routing of car lines; no changes in routes or schedules were to be made without council permission. A fare increase was immediately obtained by the companies. On June 23, 1921, the companies petitioned the Minnesota Railroad & Warehouse Commission for valuation of their properties. This work was begun in November, 1921, by A.L. Drum & Company representing MSR and SPCR and Dr. Delos F. Wilcox representing the City of Minneapolis.

Business conditions began improving in 1922. However TCRT decided to plan no future improvements other than to the dollar amount of annual depreciation until the valuation and rate of return study was completed. TCRT management felt they should know where they stood before planning any long-range improvements. The high standards of maintenance were to be continued.

The cities and TCRT filed their respective valuations on June 5, 1923. Hearings on the valuation began October 8, 1923, and continued until December 13, 1924. On March 6, 1925, the Railroad & Warehouse Commission made public its findings on the valuation and on July 3rd issued its order as to rate of return and the rate of fare. All parties were dissatisfied of course; the cities thought the valuation was too high while TCRT thought the rate of fare insufficient to earn a reasonable return. After considerable negotiations a compromise agreement was reached on October 23, 1925, in which it was agreed to (1) accept the fair value of the property at the valuation fixed by the Commission (MSR $26,787,228; SPCR $16,196,090) and (2) accept a 7½% rate of return upon such valuation as fair and reasonable. On December 22, 1925, the Commission set the rate of fare at 8 cents cash, or 6 tokens for 40 cents, effective January 1, 1926. TCRT thought that with careful and economic operation it could earn the 7½% return.

Meanwhile TCRT had acquired all the shares (except qualifying directors' shares) of the Twin City Motor Bus Co. (August 1st, 1924). TCMB operated buses on a line between Minneapolis and St. Paul. TCMB purchased the larger of two other competing bus lines during December, 1925, for $285,000; negotiations were in progress for purchase of the second competitor which was accomplished in January, 1926. These companies were: Minneapolis-St. Paul Motor Bus Co., American Automobile Transportation Co. and Intercity Transportation Co. TCRT management believed that all public transportation in the Twin Cities should be controlled by one company! In fact TCRT felt that the constantly increasing use of the motor vehicle made it imperative that it should engage itself in all forms of public transportation. A Minneapolis investment house secured control of practically all the taxi-cab companies operating in Minneapolis and St. Paul as well as some outside points in the state. On January 4, 1927, TCRT acquired this controlling interest from the investment house. This was the Yellow Cab Corp. of Minnesota which owned 300 taxi-cabs in 1928. Thus TCRT had gained practical control of all public transportation in the entire community it served. However this taxi-cab investment was disposed of in 1929. During this period T. Julian McGill was elected 2nd Vice President of TCRT.

A company brochure published in early 1928 provided a comprehensive guide to the corporate structure and related physical facilities. The major features are summarized in the following paragraphs.

Minneapolis St. Ry. owned and/or operated:

1. the entire street railway system within the corporate limits of the City of Minneapolis: 237.492 miles of track (excluding the Harriet Right-of-Way which was owned by the M. & St. P. Sub'n. R.R.); plus the Fort Snelling line, comprising 4.453 miles of track from 54th St. to the Mississippi River (all located on the U.S. Government Reservation); making a total of 241.945 miles of track. 181 miles of track were on paved streets. MSR operated the Columbia Heights line which was owned by the M. & St. P. Sub'n. R.R.
2. Seventeen parcels of land on which were situated the carhouse, office, power station, and substation buildings.
3. Power distribution and transmission system consisting of overhead trolley wire with iron poles, feeder lines, underground conduit and transmission lines.
4. Forty-three buildings comprising the general office building, power and substation buildings, carhouses and miscellaneous buildings.
5. Steam turbine power station of 75,000 KW capacity supplying power for the operation of the Minneapolis and St. Paul and Suburban systems, augmented by purchase of water power from the St. Anthony Falls Water Power Co. generated from the Lower Dam Water Power Station and Hennepin Island Water Power Station.
6. Six rotary converter substations.

St. Paul City Ry. owned and/or operated:

1. The entire street railway system located within the corporate limits of the City of St. Paul: 171.234 miles of track. Operated the South St. Paul line owned by the M. & St. P. Sub'n. R.R.; operated the line owned by the same company on E. 7th St. from Duluth Ave. to the city limits.
2. The Selby Tunnel and seven parcels of land on which were located the general office, carhouse, substation and shop buildings.
3. Power distribution and transmission system consisting of overhead trolley wire (supported mostly by iron poles), feeder lines, underground conduit with transmission and distribution cables.
4. Four rotary converter substations with a total capacity of 20,400 KW. All primary power was supplied by the Mpls. St. Ry. and the St. Anthony Falls Water Power Co.
5. Thirty-seven office, shop, substation, carhouse and miscellaneous buildings.
6. Shop machinery and tools.

Minneapolis & St. Paul Suburban Railroad Co. owned 91.352 miles of track located largely on private right-of-way. There were three principal divisions:

1. Minnetonka Division: 43.099 miles of track, comprising the Lake Minnetonka line, which included the Harriet Right-of-Way (5.859 miles of track) extending from the east line of Hennepin Ave. and 31st St. to the westerly city limits at 44th St. and France Ave. So.
2. Stillwater Division: 33.980 miles of track, consisting of the: Stillwater line: 27.719 miles of track, including 5.09 miles of track on E. 7th St. from Duluth Ave. to the city limits; White Bear line: 4.466 miles of track, and Mahtomedi line: 1.795 miles of track.
3. Local Suburban Division: 14.273 miles of track, consisting of the: Columbia Heights line: 1.544 miles of track, from 37th Ave. N.E. and Central Ave. to 40th Ave. N.E. and 5th St.; Robbinsdale line: 1.846 miles of track, from the city limits at Xerxes Ave. N. and Broadway to Robbinsdale; St. Louis Park line: 2.103 miles of track, from the city limits at W. Lake St. and France Ave. to St. Louis Park; and South St. Paul line: 8.780 miles of track.

These were all high speed lines of the most modern construction with large quantities of grading work. Bridges, viaducts, subways and culverts were quite extensive and track was well ballasted. All primary power was purchased from the Mpls. St. Ry. at: Minnetonka Division: 2 main substations (Hopkins and Excelsior) and 1 terminal substation (Harriet R/W just west of Upton Ave.) and Stillwater Division: 2 main substations (Wildwood and Owen St.) and 1 terminal substation (Wildwood).

Minnetonka & White Bear Navigation Co.: As all steamboat operations had ceased by 1928, this company owned only: Property at Lake Minnetonka consisting of land, buildings and equipment, part of which was leased to the owners of the Excelsior Amusement Park, and property at White Bear Lake consisting primarily of land, buildings and equipment known as the Wildwood Amusement Park.

Horace Lowry died August 22, 1931. Under his administration the system reached its highest point, operating 1021 cars over 530 miles of track.

The Declining Years

T. Julian McGill became President in 1931. The effects of the economic depression were creating problems for TCRT with which his administration were forced to cope. Conversion to one-man operation of streetcars was begun in 1931 and continued through 1937. The first abandonments of trackage took place in 1932 when the impressive but unprofitable operations to Lake Minnetonka, White Bear and Stillwater were discontinued. As always seems to be the situation, the most colorful and interesting operations were the first to go. A.M. Robertson died July

2, 1933, just shortly before re-organization of the Duluth Street Railway removed it from TCRT-affiliated ownership. The year 1933 was the low point of the depression; the net profit after fixed charges amounted to only $50,436. Other officers during the McGill administration were: E.W. Decker (Vice President), D.J. Strouse (Vice President and Secretary), E.A. Crosby (Treasurer), Sibbald McDonald (Comptroller), Donald Goodrich (General Superintendent), W.L. Larson (Purchasing Agent), L.B. Farrington (General Passenger Agent) and Walter J. Smith (Master Mechanic). T. Julian McGill died October 10, 1936, continuing a tradition set by each of his predecessors, that of dying while holding office.

He was succeeded as President by D.J. Strouse, who had worked his way upward through the organization from the position of Auditor under the administration of Thomas Lowry. TCRT was fortunate in that its destinies were in the hands of builders; men who felt their responsibility for supplying transportation as good as their means would permit. The system was never allowed to deteriorate, being aggressively maintained in line with modern standards. Mr. Strouse had the most difficult problems of all to contend with.

No new rail extensions had been built since 1933. No rail lines, other than the suburban lines abandoned in 1932, had been supplanted as of 1937. In that year it was announced that bus replacements would be confined to those instances where major track rehabilitation was required. Highway changes requested by the Minnesota Highway Department resulted in abandonment of the first car lines in Minneapolis during 1938. The first St. Paul abandonments also took place during 1938. However TCRT found that substitution of buses did not increase patronage; that bus revenues declined to the same extent and for the same reasons rail revenues declined. The abandonment policy was modified to consider bus substitution desirable in certain circumstances where traffic was not too heavy.

Officers of the company during most of the Strouse administration were: B.G. Noah (Vice-President), Jefferson L. Alexander (Vice President-Operations), A.D. Starkey (Treasurer), Donald Goodrich (Assistant Treasurer), Sibbald McDonald (Secretary and Comptroller), Daniel J. Bren (Assistant Secretary), F.R. Bjork (General Superintendent), L.G. Bakken (Superintendent-Minneapolis Division), E.D. Templeton (Superintendent-St. Paul Division), W.L. Larson (Purchasing Agent), R.F. Fitzsimmons (General Passenger Agent), Frank S. Morgan (Engineer of Power), O.F. Moore (Engineer-Maintenance of Way), and L.G. Barnes (Superintendent of Equipment).

TCRT was re-incorporated June 20, 1939, in Minnesota to avoid certain New Jersey franchise taxes. The New Jersey corporation and the Minnesota corporation were merged during 1939, with the Minnesota corporation the survivor.

A modernization program was approved during 1944 to purchase annually a number of streamlined streetcars to replace the existing equipment; 40 PCC cars were ordered for delivery in October and November, 1945. Mr. Strouse expressed management's views at that time as follows: "Believing that streetcars are and always will be the best vehicle of mass transportation in the areas of dense population, we have been working, planning and digging to cut expenses, and at the same time furnish the best service that our resources will permit. We are convinced that the streetcar is as necessary to most people as it ever was. The thousands who have to ride streetcars, and the other thousands who prefer to, are entitled to good cars and good service, and they are going to get them." By the summer of 1949, 100 additional PCC cars had been placed in service.

TCRT's policy was to use profits to pay off its bonded indebtedness and/or to re-invest them in modernization of the system. Charles Green, a Wall Street stock speculator, purchased 6,000 shares of TCRT stock in 1948 in anticipation of substantial dividends. When none appeared, Green wrote a letter to all 3,000 TCRT stockholders demanding that they join him in ousting President Strouse and the Board of Directors. Strouse invited Green to Minneapolis for a talk, but the meeting was a stormy one and Green returned to New York determined to wage a proxy fight to gain control of the company. Green hired a prominent Minneapolis lawyer, Fred A. Ossanna, to aid him in the battle. More letters went out from Green to the stockholders, and on November 8, 1949, he was successful in obtaining control; Green was named President and Ossanna Legal Counsel.

He immediately discontinued the rehabilitation program for equipment, laid off more than 800 employees, cut track maintenance to a minimum, and relentlessly cut schedules. He did this so belligerently and with such a lack of diplomacy that he amazed even his associates, who by now included some notorious Twin City underworld characters. (Collier's Weekly, September 29, 1951, published an article by Gorden Schendel entitled "How Mobsters Grabbed a City's Transit System".) Much antagonism developed between Green and the city councils of both cities regarding methods used to reduce service. The newspapers denounced him frequently. Green threatened to liquidate the entire St. Paul system because of insufficient profit, and even threatened to force a profit out of TCRT by auctioning off the cars and busses and selling the rails for scrap. This caused several investigations to be launched into the company's affairs, including one by the Minnesota Railroad and Warehouse Commission which obtained a court order restraining the company from abandoning any more lines without hearings. Green had originally stated that all rail lines would be replaced with buses by 1958 but later modified his stand by indicating that many heavy-traffic streetcar lines would be retained.

Things quieted down for awhile, but soon certain members of the board of directors decided to scuttle Green whose heavy-handed tactics had so alienated the public. However his shares were needed to keep the group in power and he was re-elected President in the March, 1950, annual meeting.

On May 12, 1950, his opposition acted. It was announced that Green had been stripped of his authority to act as company spokesman and thereafter all official statements would come from Ossanna. Green and Ossanna clashed repeatedly and bitterly over company policies. Green finally sold his stock at a profit of $100,000. Emil B. Asleson served as President for a short period of time until Ossanna became President in 1951. Under Ossanna's administration additional economy measures were introduced and service was further reduced because of loss of patronage. An accelerated bus conversion plan was announced, to be completed by 1954. B.M. "Barney" Larrick, an experienced conversion expert, was hired from Los Angeles to preside over the conversion which began in earnest during 1952.

The conversion was completed in 1954 as scheduled, and as it turned out, was a pillage of the electric railway system for the purpose of illegal personal profit for Ossanna and his associates. Several years later they were indicted, tried in court, found guilty, and sentenced to prison terms. The Green-Ossanna group took only five years to reduce to scrap metal what had taken the Lowry group over fifty years to build: one of the finest street railway systems in America.

T. Julian McGill

D. J. Strouse

(Both photographs Minnesota Historical Society collection)

Fred Ossanna watches the body of car 1468 being burned to salvage the metal frame and other components for scrap. It is a gloomy, rainy day, suitable weather for the end of one of the finest street railway systems in the country.
(Don Berg; Robert Schumacher collection)

2. TRACK AND OVERHEAD CONSTRUCTION

Introduction

For a number of reasons we have arbitrarily chosen to present the following material separately, and in chronological sequence, for each corporate entity. To maintain an overall perspective several comments are necessary. First, the Minneapolis St. Ry., and second, the St. Paul City Ry. systems are covered from the beginning to the end of operations (1872 to 1954). Since the Local Suburban Division of the Minneapolis & St. Paul Suburban R.R. was operated in conjunction with the appropriate local street railway, this trackage is included under MSR and SPCR from the date of acquisition (if independently owned) or date of construction. Then the history of the Minneapolis, Lyndale & Minnetonka Ry. steam motor lines from 1879 to 1891 is presented. Lastly the individual components of the Minneapolis & St. Paul Suburban R.R. are covered in the following sequence:

Local Suburban Division: independent companies from the date of construction to date of acquisition (1890 to 1906).

Stillwater Division: independent companies from date of construction to date of acquisition (1890 to 1898) followed by M. & St. P. Sub'n. R.R. construction from beginning to end of operations (1898 to 1951).

Minnetonka Division: M. & St. P. Sub'n. R.R. construction from beginning to end of operations (1904 to 1951).

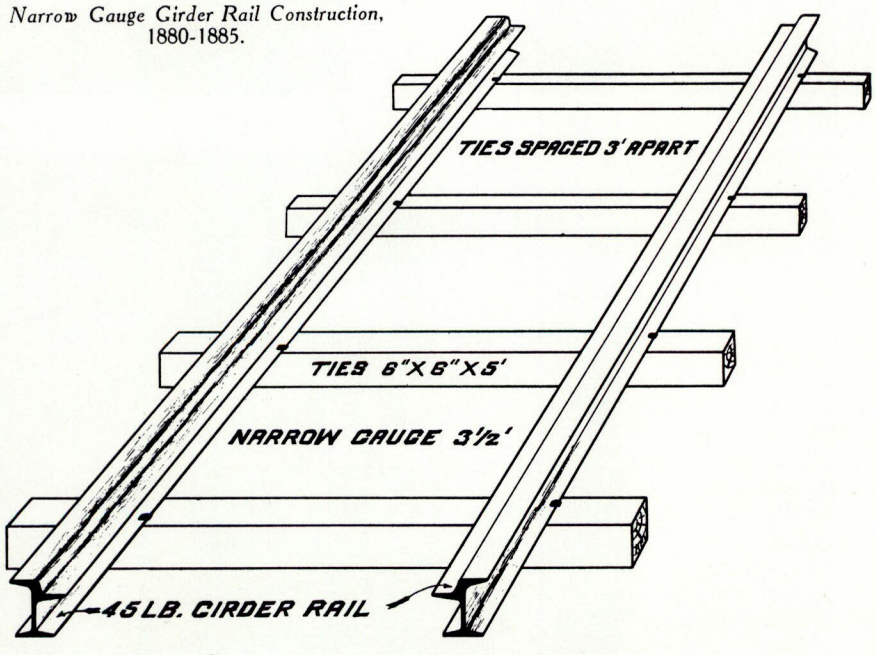
Minneapolis Street Railway Horsecar Trackage

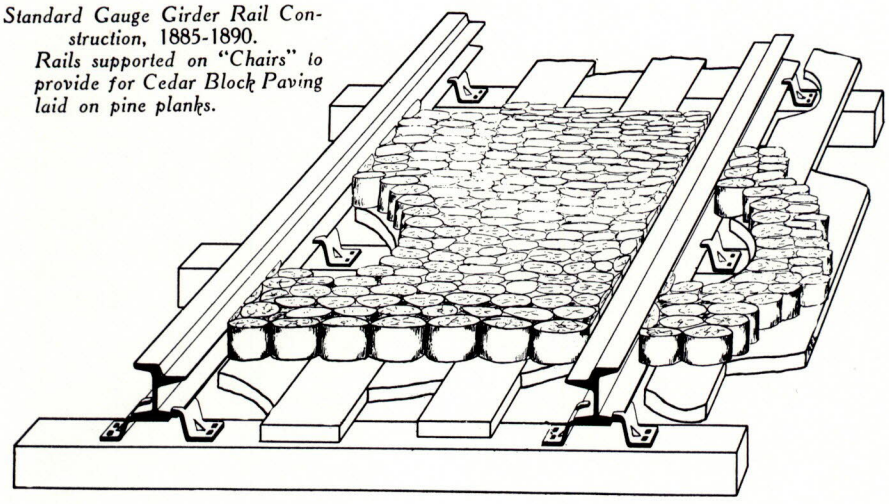
The track of the first horsecar line was laid to 3'6" gauge on the surface of the unpaved streets. 5" x 5" x 16' wooden stringers were spiked to wooden crossties. 23 lb. (per lineal yard) bent iron plates, which formed the running surface for the car wheels, were spiked to the wooden stringers. Contract cost of the completed track was $6,000 per mile.

The second type of track construction utilized, beginning about 1878, consisted of 4" x 5" wooden stringers (probably 16' long) spiked to 4" x 5" x 5' wooden crossties, with the stringers braced on the ties by wooden chairs. 25 lb. iron strap rail was spiked to the stringers.

When street paving (cedar blocks laid on pine planks) was undertaken, beginning about 1880, girder rail supported by chairs was utilized. 6" x 6" x 5' wooden ties, spaced 38" apart (center to center), were used on which was spiked 27 lb., 35 lb., or 45 lb. girder rail. The 1916 valuation reported that 26 lb. and 35 lb. tram rail, 45 lb. grooved rail, and 45 lb. grooved rail supported by chairs, was used for the horsecar trackage from 1875 to 1889.

Narrow Gauge Girder Rail Construction, 1880-1885.





Standard Gauge Girder Rail Construction, 1885-1890. Rails supported on "Chairs" to provide for Cedar Block Paving laid on pine planks.

A history published by the company reported that conversion of the track gauge from 3'6" to 4'8½" was begun in 1888 and continued for fifteen months until completion in 1890. However other sources indicate that conversion was accomplished simultaneously with electrification of the system.

1875

The first horsecar line: double track on Washington Ave. N. from the St. Paul & Pacific R.R. crossing at 4th Ave. N. to Hennepin Ave., and on Hennepin Ave. to the middle of Nicollet Island; single track from this point, on Central Ave. S.E. (now E. Hennepin Ave.) to 4th St. S.E., and on 4th St. S.E. to 14th Ave. S.E., opened for service on September 2nd. Total track amounted to 2.10 miles.

Single track was constructed on Washington Ave. So. from Hennepin Ave. to 7th Ave. So. (now Park Ave.), on 7th Ave. So. to 4th St. So., and on 4th St. to Cedar Ave. later in 1875.

By December 31, 1875, 4.37 miles of track were owned.

1876

Second track added on Washington Ave. So. from Hennepin Ave. to 7th Ave. So.

Single track built on 4th Ave. So. from Washington Ave. to 17th St.

Single track built on Washington Ave. No. from 4th Ave. No. to Plymouth Ave.

Single track built on Hennepin Ave. from Washington Ave. to 12th St., and on 12th St. So. from Hennepin Ave. to 3rd Ave. So.

1877

Single track built on 11th Ave. So. from 4th St. to 7th St., and on 7th St. So. from 11th Ave. to Cedar Ave. Existing track on 4th St. So. from 11th Ave. So. to Cedar Ave. was abandoned.

Single track built on 12th St. So. from 3rd Ave. So. to 4th Ave. So., and on Grant St. from 4th Ave. So. to Portland Ave.

1878

Single track built on 8th Ave. (now Chicago Ave.) from Washington Ave. to 7th St. So., and on 7th St. So. from 8th Ave. to 11th Ave. So. Single track built on 15th Ave. So. from 7th St. to 8th St., on 8th St. to 16th Ave. So., and on 16th Ave. So. to Franklin Ave. Existing track on 11th Ave. So. from 4th St. to 7th St. and on 4th St. from 8th Ave. So. to 11th Ave. So. was abandoned.

(The 1916 valuation listed single track built during this year on 7th St. So. from 15th Ave. So. to Cedar Ave. and on Cedar Ave. from 7th St. So. to Franklin Ave.)

Single track built on 4th Ave. So. from 17th St. to 24th St.

1879

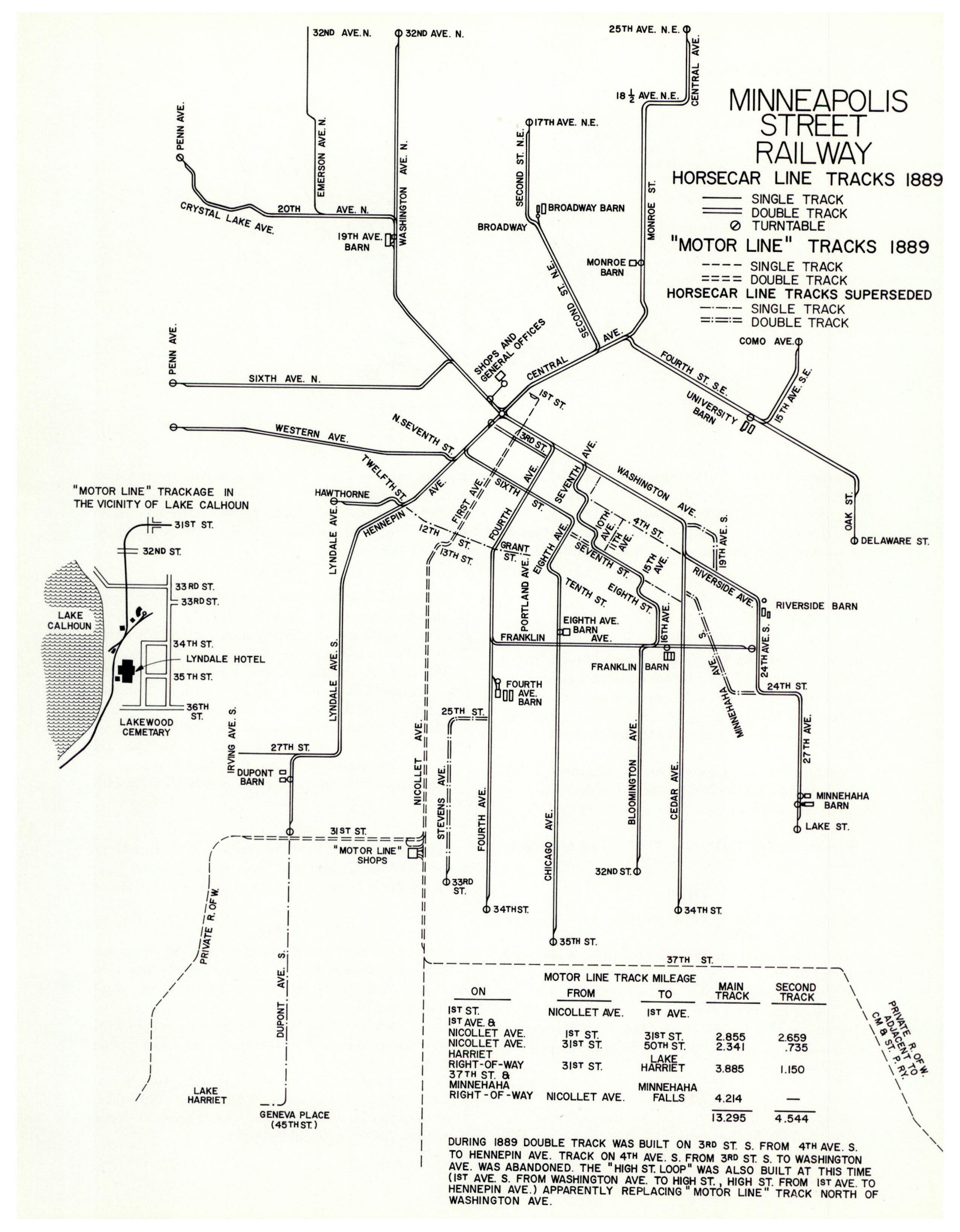
Existing track on 12th St. So. and Grant St. from Hennepin Ave. to Portland Ave. So. was abandoned June 23rd, probably because of construction of "The Motor Line".

1880

Single track built on Washington Ave. So. from 4th Ave. So. to 19th Ave. So., on 19th Ave. So. to Riverside Ave., and on Riverside Ave. So. to 25th Ave. So.; completed April 27th.

Single track built on 12th St. No. from Hennepin Ave. to Hawthorne Ave., and on Hawthorne Ave. to Lyndale Ave. N.

Existing track on 7th St. So. from 15th Ave. So. to Cedar Ave. So. was abandoned November 18th. (The 1916 valuation lists also abandonment of track on Cedar Ave. from 7th St. to Franklin Ave.)



MOTOR LINE TRACK MILEAGE

ON	FROM	TO	MAIN TRACK	SECOND TRACK
1ST ST.	NICOLLET AVE.	1ST AVE.		
1ST AVE. & NICOLLET AVE.	1ST ST.	31ST ST.	2.855	2.659
NICOLLET AVE.	31ST ST.	50TH ST.	2.341	.735
HARRIET RIGHT-OF-WAY	31ST ST.	LAKE HARRIET	3.885	1.150
37TH ST. & MINNEHAHA RIGHT-OF-WAY	NICOLLET AVE.	MINNEHAHA FALLS	4.214	—
			13.295	4.544

DURING 1889 DOUBLE TRACK WAS BUILT ON 3RD ST. S. FROM 4TH AVE. S. TO HENNEPIN AVE. TRACK ON 4TH AVE. S. FROM 3RD ST. S. TO WASHINGTON AVE. WAS ABANDONED. THE "HIGH ST. LOOP" WAS ALSO BUILT AT THIS TIME (1ST AVE. S. FROM WASHINGTON AVE. TO HIGH ST., HIGH ST. FROM 1ST AVE. TO HENNEPIN AVE.) APPARENTLY REPLACING "MOTOR LINE" TRACK NORTH OF WASHINGTON AVE.

1881

Single track built on Franklin Ave. from 16th Ave. So. to Cedar Ave., and on Cedar Ave. So. from Franklin Ave. to Lake St.

Single track built on 8th Ave. So. from 7th St. So. to Franklin Ave.

Single track built on 7th St. No. from Hennepin Ave. to Western Ave. N. (now Glenwood Ave.) and on Western Ave. from 7th St. N. to the Great Northern Ry./Mpls. & St. Louis Ry. railroad tracks; completed April 18th.

Double track built on 2nd St. N.E. from Hennepin Ave. to Broadway St. N. E.

Second track added on existing lines as follows: 4th Ave. So. from Washington Ave. to 24th St.; and E. Hennepin Ave. from the middle of Nicollet Island to 4th St. S.E., and on 4th St. S.E. to 14th Ave. S.E.

1882

Double track built on Washington Ave. N. from Plymouth Ave. to 20th Ave. No. (now W. Broadway); single track built on 20th Ave. N. from Washington Ave. N. to Fremont Ave. No.

Double track built on 6th St. So. from Hennepin Ave. to 8th Ave. So.

Double track built on Central Ave. (E. Hennepin Ave.) from 4th St. S.E. to Monroe St. N.E. and on Monroe St. to Broadway St. N.E.; single track built on Monroe St. from Broadway St. to 18½ Ave. N.E., on 18½ Ave. to Central Ave., and on Central Ave. N.E. to 25th Ave. N.E.

Second track added on existing lines as follows: 7th Ave. S. from Washington Ave. to 4th St., 4th St. from 7th Ave. So. to 8th Ave. S., 8th Ave. So. from 4th St. to 7th St., 7th St. S. from 8th Ave. So. to 15th Ave. So., 15th Ave. So. from 7th St. to 8th St., 8th St. So. from 15th Ave. S. to 16th Ave. So., and on 16th Ave. So. from 8th St. to Franklin Ave.

12th St. N. from Hennepin Ave. to Hawthorne Ave., and Hawthorne Ave. from 12th St. to Lyndale Ave. N.

Washington Ave. So. from 4th Ave. S. to 19th Ave. S., 19th Ave. So. from Washington Ave. to Riverside Ave., and Riverside Ave. from 19th Ave. S. to 25th Ave. So.

Washington Ave. N. from 4th Ave. N. to Plymouth Ave. N.

1883

Single track built on 20th Ave. N. from Fremont Ave. N. to Crystal Lake Ave., and on Crystal Lake Ave. (now W. Broadway) to Knox Ave. N.

Single track built on 4th Ave. So. from 24th St. to 25th St., on 25th St. from 4th Ave. to Stevens Ave., and on Stevens Ave. So. from 25th St. to Lake St. (According to the 1916 valuation there was single track on 25th St. and double track on Stevens Ave. See 1884.)

1884

Double track built on Hennepin Ave. from 12th St. to Lyndale Ave., on Lyndale Ave. So. to 27th St., on 27th St. to Dupont Ave., on Dupont Ave. So. to 29th St.; single track built on Dupont Ave. So. from 29th St. to Geneva Place (45th St.) and on Geneva Place to Lake Harriet.

Double track built on Cedar Ave. from Washington Ave. to Minnehaha Ave., on Minnehaha Ave. So. from Cedar Ave. to 24th St., on 24th St. to 27th Ave. So., and on 27th Ave. So. to 27th St. Existing track on Washington Ave. from Cedar Ave. to 19th Ave. So. and on 19th Ave. So. from Washington Ave. to Riverside Ave. was abandoned.

Existing track on 8th Ave. So. from Washington Ave. S. to 4th St. So. was abandoned.

Second track added to existing lines as follows: Monroe St. N.E. from Broadway St. to 18½ Ave. N.E., on 18½ Ave. to Central Ave., and on Central Ave. N.E. to 25th Ave. N.E.

8th Ave. So. from 7th St. to Franklin Ave.

4th Ave. So. from 24th St. to 25th St., on 25th St. to Stevens Ave., and on Stevens Ave. from 25th St. to Lake St.

New double track built on Stevens Ave. So. from Lake St. to 33rd St.

1885

Single track built on 3rd Ave. No. from Washington Ave. N. to 2nd St. No.

Double track built on 6th Ave. No. (now Olson Hwy.) from Washington Ave. N. to Girard Ave. No.

Double track built on Franklin Ave. from 16th Ave. So. to Bloomington Ave., and on Bloomington Ave. So. from Franklin Ave. to 26th St.

Second track added on Western Ave. and 7th St. N. from Hennepin Ave. to the railroad tracks. New double track was built on Western Ave. N. (now Glenwood Ave.) from the railroad tracks to Girard Ave. N.

1886

Double track built on Bloomington Ave. So. from 26th St. to 29th St.

Double track built on 8th Ave. So. from Franklin Ave. to Lake St.

Double track built on Washington Ave. No. from 20th Ave. N. to 32nd Ave. No.

Double track built on 4th St. S.E. from 14th Ave. S.E. to 15th Ave. S.E., and on 15th Ave. S.E. from 4th St. S.E. to Como Ave.

Double track built on 27th Ave. So. from 27th St. to Lake St. and on 24th Ave. So. from Riverside Ave. to 24th St. Existing track on Riverside Ave. from 24th Ave. So. to 25th Ave. So., on Minnehaha Ave. from Cedar Ave. to 24th St., and on 24th St. to 27th Ave. So. was abandoned. (The 1916 valuation lists track on Franklin Ave. from 16th Ave. So. to Cedar Ave. as being abandoned in 1886.)

Second track added on existing lines as follows: 20th Ave. No. from Washington Ave. N. to Knox Ave. N., Cedar Ave. from Franklin Ave. to Lake St.

1887

Double track built on Crystal Lake Ave. from Knox Ave. N. to Penn Ave. N.

Double track built on 4th St. S.E. from 15th Ave. S.E. to Oak St. S.E., single track built on Oak St. S.E. from 4th St. S.E. to Delaware Ave. S.E.

Double track built on 6th St. So. from 8th Ave. So. to 10th Ave. So., and on 10th Ave. So. from 6th St. to 7th St. Existing track on 7th St. So. from 8th Ave. So. to 10th Ave. So. was abandoned.

Double track built on 4th Ave. So. from 25th St. to 34th St. Existing track on 25th St. from 4th Ave. to Stevens Ave. and on Stevens Ave. So. from 25th St. to 33rd St. was abandoned.

Single track built on 27th St. from Dupont Ave. So. to Irving Ave. So. Existing track on Dupont Ave. So. from 31st St. to Geneva Place, and on Geneva Place to Lake Harriet was abandoned.

1888

Double track built on: Bloomington Ave. So. from 29th St. to 32nd St., Cedar Ave. So. from Lake St. to 34th St., 8th Ave. So. from Lake St. to 35th St., Franklin Ave. from 4th Ave. So. to 24th Ave. So., 2nd St. N.E. from Broadway St. N.E. to 17th Ave. N.E., 6th Ave. No. from Girard Ave. N. to Penn Ave. N., Western Ave. N. from Girard Ave. N. to Penn Ave. N. A directory for this period reports that 186 horse cars were operated over 69.3 miles of 3'6" gauge track.

1889

Single track built on Emerson Ave. No. from 20th Ave. N. to 32nd Ave. N. (now Lowry Ave.).

Double track built on Grant St. from Nicollet Ave. So. to 1st Ave. So., and on 1st Ave. So. from Grant St. to 13th St. utilizing track materials for the proposed cablecar line. Existing track on Nicollet Ave. from 13th St. to Grant St., and on 13th St. from Nicollet Ave. to 1st Ave. So. was abandoned.

Double track built on 3rd St. So. from 4th Ave. So. to Hennepin Ave. Existing double track on 4th Ave. So. from 3rd St. So. to Washington Ave. So. was abandoned.

The single track High St. loop was built: from Washington Ave. So. on 1st Ave. So. to High St., and on High St. from 1st Ave. So. to Hennepin Ave.

According to the 1916 valuation, just prior to the initial electrification in 1889, 66.659 miles of horsecar track was owned. Previously 9.289 miles of track had been abandoned prior to the expiration of its useful life. Turntables were used extensively throughout the system; locations as of 1889 were as follows:

Bloomington Ave. and 32nd St.
Cedar Ave. and 34th St.
8th Ave. So. and 35th St.
Central Ave. N.E. and 25th Ave. N.E. (now Lowry Ave.)
14th Ave. S.E. and Como Ave.
Dupont Ave. So. and 31st St.
Franklin Ave. and 24th Ave. So.
Lyndale Ave. N. and Hawthorne Ave.
Washington Ave. and Hennepin Ave.
3rd St. So. and Hennepin Ave.
27th Ave. So. and Lake St.
Oak St. S.E. and Delaware Ave.
3rd Ave. N. and Washington Ave. N.
Washington Ave. N. and 32nd Ave. N.
Western Ave. N. and Penn Ave. N.
2nd St. N.E. and 17th Ave. N.E.
4th Ave. So. and 34th St.
6th Ave. N. and Penn Ave. N.
20th Ave. N. and Penn Ave. N.

Temporary Minneapolis Horsecar Trackage 1890-1891

During conversion of the street railway system from horse-drawn cars to electrically operated streetcars, the tracks of some horsecar lines were moved to the side of the street during the electrification process. On other lines temporary horsecar tracks were installed on adjacent streets in the interim.

Electrification of the Minneapolis Horsecar System

1889

The 4th Ave. So. line was selected for the experiment with electrically operated streetcars. Track involved extended from 1st Ave. So. and 3rd St. So., on 3rd St. So. to 4th Ave. So., and on 4th Ave. So. from 3rd St. to 34th St. MSR purchased the necessary engines and dynamos for generating electricity and let a contract with the Thomson-Houston Electric Co. for conversion of the horsecar line to electric operation. Work began October 1, 1889, on removing the light horsecar tracks and replacing them with 70 lb. T rail spiked to wooden crossties spaced at 24" intervals. Overhead construction consisted of wooden poles placed on each side of the street with span wires between each set of poles supporting the trolley wire. At 4:00 P.M., December 24, 1889, eight electric cars began operating over the line.

1890

The type of construction selected for conversion to electricity consisted of the following (which remained standard until 1895).

Track on unpaved streets: 70 lb. T rail spiked to wooden crossties spaced 24" center to center; on paved streets 6" high girder rails were used to allow for granite block paving laid on an earth foundation.

Overhead: ornamental iron poles were placed in the center of the streets between the two tracks; brackets extending outward on each side of the pole supported the trolley wire.

New track construction: Double track built on Lyndale

Ave. So. from 27th St. to 28th St., and on 28th St. from Lyndale Ave. to Hennepin Ave. Existing track on 27th St. from Lyndale Ave. to Irving Ave., and on Dupont Ave. from 27th St. to 31st St. was abandoned.

Double track built on Plymouth Ave. N. from Washington Ave. N. to Lyndale Ave. N.

Double track built on Riverside Ave. from 24th Ave. So. to 27th Ave. So., on 27th Ave. So. from Riverside Ave. to Minnehaha Ave., and on Minnehaha Ave. from 27th Ave. So. to 37th St. Existing track on 24th Ave. So. from Riverside Ave. to 24th St. and on 24th St. from Riverside Ave. to 27th Ave. was abandoned.

Existing track on Franklin Ave. from 4th Ave. So. to 24th Ave. So. was abandoned. (Horsecars had stopped running on this trackage October 26, 1889.)

Double track built on Washington Ave. S.E. from Cedar Ave. (Seven Corners) to University Ave. S.E., and on University Ave. to the city limits at Emerald St. S.E. where it connected with the newly constructed track of the SPCR to form the Interurban line, the first inter-city line connecting the two cities. As the two cities were some distance apart at this time, much of the line was on private right-of-way through open country.

Double track built on 8th Ave. So. from 35th St. to 38th St.

Double track built on 4th Ave. So. from 34th St. to 38th St.

Single track built on Douglas Ave. from Hennepin Ave. to Penn Ave., and on Penn Ave. So. to 21st St.

Single track built on Washington Ave. No. from 32nd Ave. No. to 42nd Ave. No.

Dates electrified lines were opened for traffic:

Sept. 10th: Washington Ave. No. from Hennepin Ave. to 42nd Ave. N.

Sept. 21st: Washington Ave. So., Cedar Ave., Riverside Ave., and 27th Ave. So. from downtown Minneapolis to 27th Ave. So. and 26th St.

Sept. 22nd: 1st Ave. So. and Nicollet Ave. from downtown Minneapolis to 38th St.; and October 5th: Nicollet Ave. from 38th St. to 50th St. (This replaced the "Motor Line" steam operations.)

Nov. 28th: Lyndale Ave. So. from Hennepin Ave. to 28th St. and on 28th St. to Hennepin Ave.

Dec. 7th: 8th Ave. So. from 7th St. to 38th St.

Dec. 9th: Douglas Ave. from Hennepin Ave. to Penn Ave., and on Penn Ave. to 21st St.

Dec. 9th: "Interurban" line on Washington Ave. and University Ave. from Cedar Ave. to city limits and through to St. Paul.

Dec. 10th: Hawthorne Ave. from 12th St. and Hennepin Ave. to Lyndale Ave. N.

1891

New track construction:

Double track built on Plymouth Ave. N. from Lyndale Ave. N. to Penn Ave. N.

Double track built on 2nd St. N.E. from 17th Ave. N.E. to Lowry Ave. N.E. and on Lowry to Grand St. N.E.

Double track built on 4th St. So. from 1st Ave. So. to 8th Ave. So., and on 15th Ave. So. from 8th St. So. to Franklin Ave. Existing track on 7th Ave. So. from Washington Ave. to 4th St. So., and on 16th Ave. So. from 8th St. So. to Franklin Ave. was abandoned.

Double track built on Cedar Ave. from Riverside Ave. to Franklin Ave. Existing track on Franklin Ave. from 16th Ave. So. to Cedar Ave. was abandoned.

Double track built on Lyndale Ave. So. from 28th St. to 31st St. Single track built on Bryant Ave. So. from 31st St. to 38th St. Existing track on 28th St. from Lyndale Ave. to Hennepin Ave. was abandoned.

Double track built on Central Ave. N.E. from Monroe St. N.E. to 18½ Ave. N.E. Existing track on Monroe St. from Broadway St. N.E. to 18½ Ave. N.E. and on 18½ Ave. from Monroe St. to Central Ave. was abandoned.

Double track built on Monroe St. N.E. and Broadway St. N.E. to Washington St. N.E., and on Washington St. to 17th Ave. N.E.

Double track built on Hennepin Ave. from Lyndale Ave. to 31st St.

Double track built on Minnehaha Ave. from 37th St. to Minnehaha Falls at 51st St.; a loop was built at 51st St.

Double track built on Penn Ave. N. from 20th Ave. N. to 30th Ave. N.

Second track added on Washington Ave. N. from 32nd Ave. N. to 42nd Ave. N.

Existing track on Oak St. S.E. from Washington Ave. to Delaware St. was abandoned.

Dates electrified lines were opened for traffic:

January 25th: Western Ave. from 7th St. and Hennepin Ave. to Penn Ave.

May 24th: 31st St. from Nicollet Ave. to the Harriet Right-of-Way and on the Right-of-Way to the Lake Harriet loop. (This was the "Motor Line" trackage.) A pavilion was built at Lake Harriet. The track from Lake Calhoun to Lake Harriet was illuminated at night by 40 powerful arc lights attached to the overhead poles at intervals as a scenic attraction.

May 28th: 4th St. from 1st Ave. So. to 8th Ave. So., and on 15th Ave. So. from 8th St. to Franklin Ave., together with the Bloomington Ave. line trackage to 32nd St.

June 14th: 6th Ave. No. from Washington Ave. to Penn Ave.; from downtown Minneapolis on Hennepin Ave., Central Ave., and 4th St. S.E. to Oak St. and Washington Ave., and on 15th Ave. S.E. from 4th St. S.E. to Como Ave.; and from 27th Ave. So. and 26th St. to Minnehaha Ave., and on Minnehaha Ave. to Minnehaha Falls.

June 28th: Central Ave. from 4th St. S.E. to 25th Ave. N.E.

August 4th: 2nd St. N.E. from Hennepin Ave. to Lowry Ave. and on Lowry Ave. to Grand St. N.E.

August 13th: 20th Ave. No. from Washington Ave. N.

to Crystal Lake Ave., on Crystal Lake Ave. to Penn Ave., and on Penn Ave. N. from 20th Ave. N. to 30th Ave. N.; Hennepin Ave. from Lyndale Ave. to 31st St.

December 16th: Lyndale Ave. So. from 28th to 31st St. and Bryant Ave. So. from 31st to 38th St.

December 17th: Emerson Ave. No. from 20th Ave. N. to 32nd Ave. N.; Cedar Ave. from Riverside to Franklin Ave. and from Franklin Ave. to 34th St.

December 19th: Monroe St. from Central Ave. to Broadway St., Broadway St. to Washington St., and on Washington St. to 17th Ave. N.E.

December 31st: Plymouth Ave. N. from Washington Ave. to Penn Ave.

Track electrified during 1890-1891 in downtown Minneapolis included: 3rd St. S., Hennepin Ave. to 4th Ave. S.; 4th St. S., 1st Ave. S. to 8th Ave. S.; 8th Ave. S., 4th St. to 7th St. S., and 6th St. S., Hennepin Ave. to 8th Ave. S.

Looking south on Hennepin Ave. about 1895, with the old Minneapolis city hall between Hennepin and Nicollet Avenues. Note the center overhead pole construction. (James Foster collection)

St. Paul City Railway Horsecar Trackage

1872

Single track built on: 3rd St. from Fort St. (Seven Corners) to Wabasha St., Wabasha St. from 3rd St. to 4th St., 4th St. from Wabasha St. to Jackson St., Jackson St. from 4th St. to 7th St., 7th St. from Jackson St. to Locust St., and Locust St. to the intersection of Lafayette Ave. and Westminster (Woodward) St. Later that year track was extended on: Fort St. (W. 7th St.) from Seven Corners west to Ann St.; and on 7th St. from Seven Corners east to Jackson St.

1873

Track on 3rd St. between Seven Corners and Wabasha St. was removed and relocated to 4th St.

Single track completed November 11th on Wabasha St. from the railroad tracks below 2nd St. to 10th St., and on 10th St. to St. Peter St. ("Wabasha & Park Place" line).

A turntable was installed on E. 7th St. near Jackson St.

1874

Single track built on 10th St. from St. Peter St. to College Ave. and Rice St., with a passing siding installed on Wabasha St. between 9th and 10th Streets. A passing siding was also installed on Fort St. at Walnut St.

1875

A passing siding was installed on 4th St. between Minnesota and Robert Streets.

1879

Single track built from Rice St. and College Ave. on Rice St., Summit Ave., Nelson Ave., and Western Ave., to Western and Ashland Ave. (with a turntable at Western and Ashland), opened May 17th as the "St. Anthony Hill" line.

ST. PAUL CITY RY.

1880

Some second track was added, apparently on certain sections of track shared by two lines, and on Fort St. to Chestnut St.

New track was under construction in April on: W. 3rd St. from Fort St. (Seven Corners) to Wabasha St.; and on St. Peter St. from 4th St. to 10th St.

Considerable new track was built during the summer, and when completed in late September service was consolidated into two lines:

"St. Anthony Hill & Lafayette Ave." (red light at night): eastbound cars ran on Western, Iglehart, Wabasha, 4th St., Sibley, 8th St., Locust, and Lafayette to Partridge St.; westbound cars ran on Lafayette, Locust, 7th St., Jackson, 4th St., St. Peter, 10th St., Rice, Summit, Nelson and Western to Ashland.

"Fort St. & Mississippi St." (green light at night): eastbound cars ran on Fort St., 3rd St., Wabasha, 4th St., Sibley, 8th St., Jackson, Pearl and Mississippi St. to Pennsylvania Ave.; westbound cars ran on Mississippi, 13th St., Jackson, 4th St., and Fort St. to Ann St.

Cars operated from the barn at 4th and St. Peter Streets, and provided ten minute service from 6:30 A.M. to 9:50 P.M.

1881

Track extended on W. 7th St. (Fort St.) from Ann St. to Tuscarora St.

Track built on Rice St. from Iglehart Ave. to University Ave., and on University Ave. to Dale St.

1882

Track built on: Laurel Ave. from Western Ave. to Dale St.; and on 4th St. from Sibley St. to the Union Depot.

1883

During May, new track and switches were laid on 10th St. between Wabasha and St. Peter Streets; track on Wabasha was to be used by the "St. Anthony Hill" line, and that on St. Peter by the "University Ave." line.

Track completed in November on Dale St. from Laurel Ave. to Grand Ave., and on Grand Ave. from Dale to Victoria St.

1884

Track was abandoned on: W. 3rd St. from W. 7th St. to Wabasha St.; Sibley St. from 4th St. to 8th St.; and 4th St. from Sibley St. to the Union Depot (a turntable was installed 60 ft. east of Sibley St. on 4th St.).

Track extended from Lafayette Ave. and Westminster St. to Collins Ave. and Burr St.

Double track built on W. and E. 7th St. from W. 4th St. to Jackson St., and Locust St. to Kittson St.

Second track added on: W. 4th St. from W. 7th St. to Wabasha St.; Jackson St. from 4th St. to 13th St.; 13th St. from Jackson St. to Mississippi St.; Mississippi St. from 13th St. to Pearl St.; and St. Peter St. from 4th St. to Iglehart Ave.

1885

Track completed November 14th on E. 7th St. from Kittson St. to Maria Ave.

1886

The decision was made to abandon track on Rice St., Iglehart Ave., and St. Peter St. used by the "University Ave." line, and build new track on Wabasha St. from Iglehart to University Ave.

1887

By September nearly nine miles of track had been added. Double track built on: 5th St. from Wabasha St. to between Sibley and Wacouta Streets; Oakland Ave. and Ramsey St. from W. 7th St. to Grand Ave. (November) (track on Dale St. from Grand to Laurel was abandoned); Rice St. from University to Front St., Robert St. from 5th St. to Concord St. (June), Concord St. to Cambridge St. (September); and from Collins Ave. and Burr St., on Burr St., Minnehaha Ave., Edgerton St., Reaney St., Payne Ave., to Payne and Whitall St. Single track built on Maria Ave. from E. 7th St. to Plum St.

1888

An additional ten miles of track was completed. Double track built on: "Rondo Ave." line from 10th St. and Wabasha St., on 10th St., Rice St., and Rondo Ave. to Dale St.; from Fairfield Ave. and Robert St. on Fairfield Ave., Dakota Ave., and Winifred St. to Ohio St. (June); from Payne Ave. and Whitall St., on Payne Ave., York Ave., Greenbrier St., and Maryland Ave. to Payne Ave. (October). Track built on: Rice St. from Front St. to Maryland Ave.; State St. from Concord St. southward; and E. 7th St. from Maria Ave. to Duluth Ave.

Track of the "St. Anthony Hill" line was abandoned, having been replaced by the "Selby Avenue" cablecar and "Rondo Ave." horsecar lines.

Lines operated early in the year were: "St. Anthony Hill" (from 5th and Sibley to Laurel and Dale), "Grand & Lafayette", "7th St.", "Maria Ave.", "University Ave. & Mississippi St.", "Rice & Concord", "Rice & West St. Paul" (on State St.), and "Rice St. Extension" (Front to Maryland). Later in the year the "Oakland Ave. & West St. Paul" line operated from Grand and Victoria to Winifred and Ohio.

An 1889 directory reported 53.3 miles of horsecar track laid with 45, 50 and 52 lb. rail.

Cablecar Trackage

A double track cable line, 2½ miles long, was built during 1887 from 4th St. and Broadway, on 4th St. and 3rd St., through Seven Corners, thence over Selby Hill (surmounting a 16% grade between Pleasant Ave. and Summit Ave.) to Selby Ave., and on Selby Ave. to St. Albans St. The 4.662 miles of track was completed in December, 1887, utilizing 54 lb. Providence rail. The

powerhouse and cablecar house was built on the horsecar barn site at Selby Ave. and Dale St. The "Selby Avenue" line was opened for service January 21, 1888. The cable powerhouse at Selby Ave. and Dale St. was enlarged, beginning in September, 1888; two Allis 28" x 60" 500 h.p. Corliss engines were to be installed. An extension of the line on Selby Ave. from St. Albans St. to Fairview Ave. was opened August 24, 1890. During 1891 the cable terminal was moved back from Fairview Ave. to Chatsworth St., with a crossover at Milton St., and the former cable portion was rebuilt for electric operation, completed October 14th.

Construction began during 1888 on a second cable line. This line ran on East 7th St. from Wabasha St. to Duluth Ave., replacing an existing horsecar line. E. 7th St. was on a long grade of about 5% and a portion of the route was on a viaduct over extensive railroad yards east of the downtown area. The completed line was opened for service June 14, 1889. The powerhouse and cablecar house was located at E. 7th St. and Duluth Ave. The powerhouse equipment consisted of: one Allis 600 h.p. single cylinder, non-condensing, Corliss engine; three boilers of 150 h.p. each, and one Westinghouse 35 h.p. engine for lighting. One cable was driven at a speed of 10 miles per hour.

The 1890 U.S. Census listed 10.02 miles of cable track.

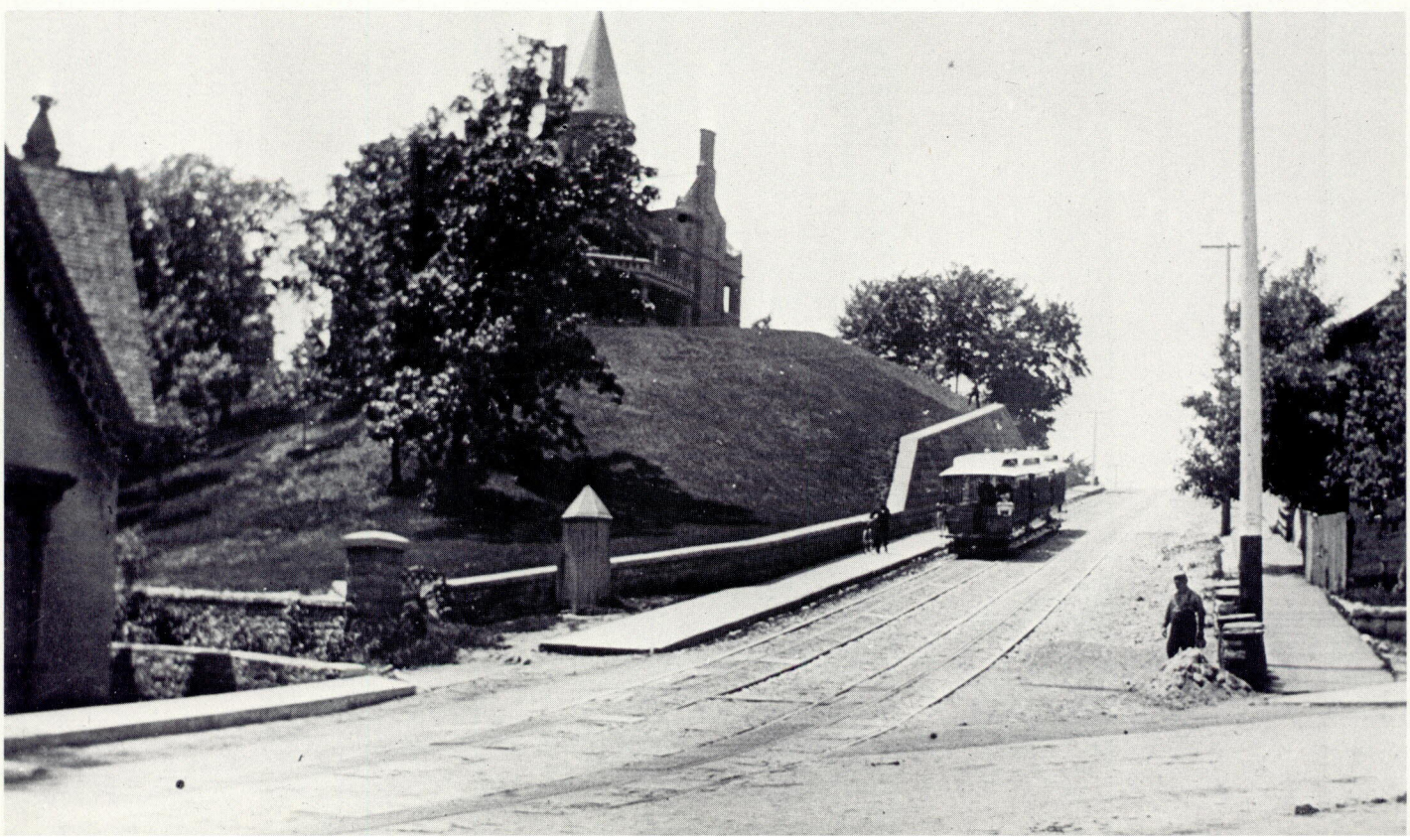
The cable on the "Selby Avenue" line was replaced in November, 1891, with a new 25,000 ft. long cable manufactured by Roebling's Sons Co. of Trenton, N.J. The powerhouse machinery was also rebuilt at this time and as completed comprised the following: two Allis single cylinder, non-condensing Corliss engines of 600 h.p. each; four boilers of 150 h.p. each, and one Westinghouse 35 h.p. engine for lighting. One cable was driven at a speed of 8.55 m.p.h. operating the line east of the powerhouse and a second cable at 12.936 m.p.h. operating the line west of the powerhouse.

Electrification of the Horsecar System

One source reported that the Rice St. line from downtown St. Paul (probably 7th St. and Wabasha St.) on Wabasha St. and Rice St. to Rice and Maryland was electrified and completed January 1, 1890, but that the portion on Rice St. from University Ave. to Maryland Ave. was not used by electric cars until February 28, 1891.

The first electric line to actually operate in St. Paul was the "Grand Ave." line. Construction work was performed by the Northwest Thomson-Houston Co. The line ran from Smith Park in downtown St. Paul to Grand Ave. and Cretin Ave. New double track was built on Grand Ave. from Victoria to Cretin. The route in downtown St. Paul was on 7th St. to Wabasha St., on Wabasha to 5th St., 5th St. to Broadway, Broadway to 7th St., and west on 7th St. The line was opened for service on February 22, 1890. The 1890 U.S. Census listed 11.18 miles of track for this line. Operation was from the Smith Ave. carhouse. The eastern half of the line utilized side poles with span wire to

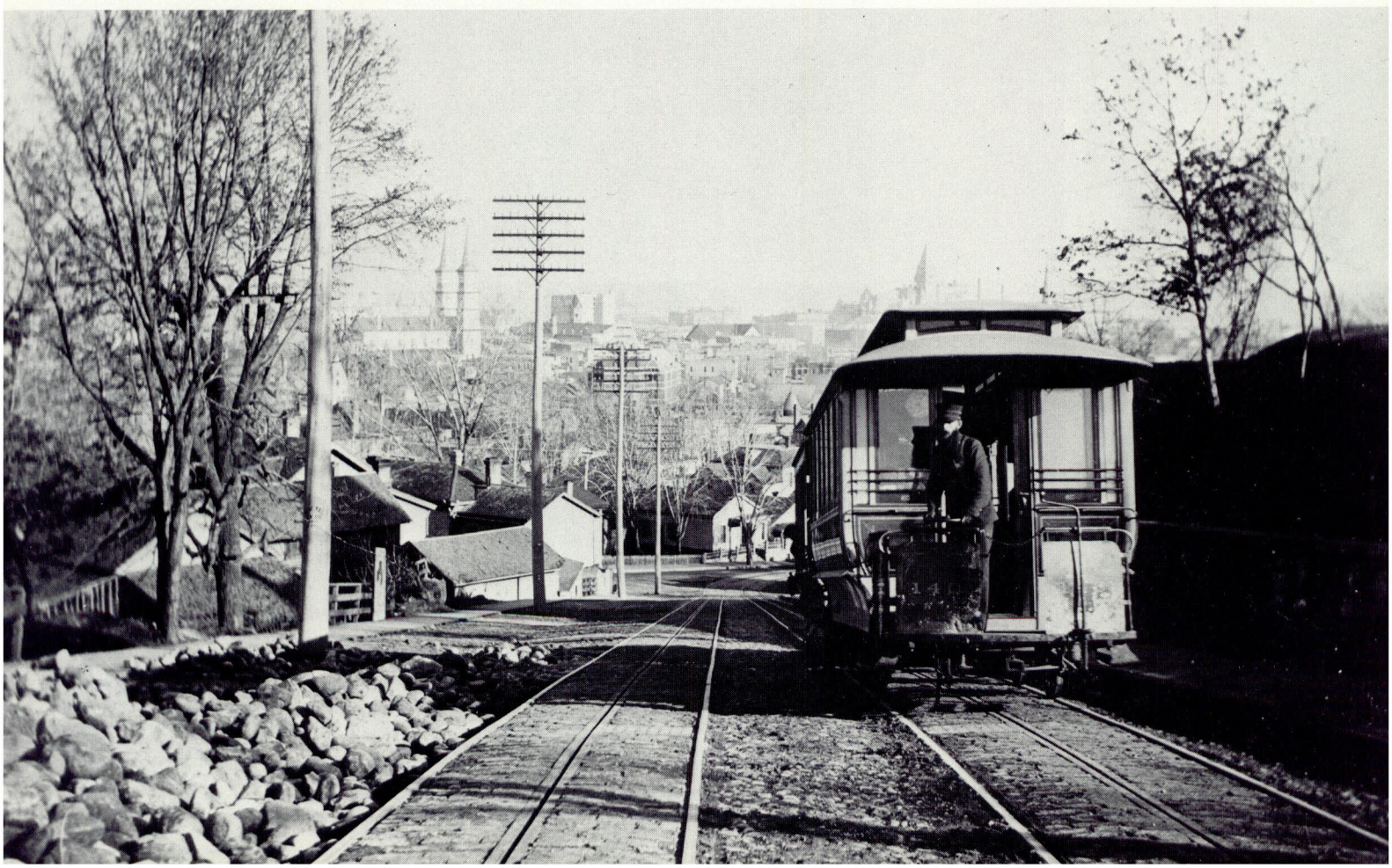
An open cable grip car with two open trailers descending Selby Hill about 1890. (Minnesota Historical Society collection)



Above: 7th St. looking east from Wabasha St., showing the trackage at the end of the "East 7th St." cablecar line.

Below: An open cable grip car with trailer 140 (a former horsecar) descending Selby Hill; the trailer conductor is applying the manually-operated wheel brakes.

(Both photographs Minnesota Historical Society collection)



support the overhead trolley wire, while the western half utilized center poles with side brackets. Future construction in St. Paul generally used side poles with span wire construction because of the narrow streets.

1890

The 1890 U.S. Census reported 29.34 miles of horsecar track prior to the following construction:

Single track built on 8th St. and Robert St. from 5th St. to Wabasha St.

The "Mississippi St." line was extended to Maryland Ave. and Arkwright St. and electrification completed May 18th.

Track laid on E. 7th St. from Duluth Ave. to Hazel Ave., connecting with the North St. Paul R.R. track at that point, completed June 10th.

West 7th St. from Ramsey St. to Tuscarora Ave. was completed October 24th.

University Ave. from Rice St. to Dale St. was electrified and completed November 2nd. The portion from Rice and University to downtown had been electrified earlier as described previously. New double track built on University Ave. from Dale St. to the Minneapolis city limits at University Ave. and Emerald St. connecting with the MSR track to form the first inter-city line connecting the two cities. This track was also completed November 2nd, but the first through operation did not take place until the MSR line was completed on December 9th.

The West St. Paul line was "reconstructed" from downtown St. Paul (7th St. and Wabasha St.) on Wabasha St., Winifred St., Ohio St., George St., and Smith Ave. to Smith Ave. and Annapolis St.; the completed line being opened December 31st.

1891

New double track built on Lexington Ave. from University Ave. to Minnehaha Ave., on Minnehaha Ave. to Snelling Ave., and on Snelling to Como Ave., completed January 13th. Double track built on Como Ave. from Snelling Ave. to Langford Ave., completed July 13th or 31st. (Operated as the "Lexington Ave." or "Hamline" line and finally as the "St. Anthony Park & Hamline" line.)

New track built on Plum St. from Maria Ave. to Hastings Ave., and on Hastings Ave. to Earl St. The horsecar line on Maria Ave. was electrified and connected with this new trackage and began operation February 28th as the "Maria Extension" line, connecting with the cable cars at E. 7th St. and Maria Ave.

New double track built on Como Ave. from Rice St. to the intersection of Front St. and Dale St. also completed February 28th.

The Payne Ave. line was electrified from downtown St. Paul via Lafayette Ave., Minnehaha Ave., Payne Ave., York Ave., and Greenbrier St. to Greenbrier and Maryland, completed February 13th. Probably at this time the track was built on 10th St. from Lafayette Ave. to Mississippi St. and the existing track on Locust St. from E. 7th St. to Lafayette Ave. was abandoned. The Rondo Ave. horsecar line was electrified from 10th St. and Wabasha St. to Rondo Ave. and Dale St., completed February 28th. These were operated as the "Lafayette Ave." and "Lafayette & Rondo" lines.

New track built on W. 7th St. from Tuscarora Ave. to the Mississippi River opposite Fort Snelling, completed to Pleasant Ave., February 28th, and to the Ft. Snelling Bridge, October 27th. (All single track with three passing sidings.)

"Mississippi St." line was extended to Brainerd Ave. and Edgerton St., completed during October.

New track built on Concord St. from Cambridge St. to Witham St. The horsecar line on Robert St. and Concord St. was electrified and connected to this new trackage — the entire line being completed January 14th. The line on State St. from Concord St. to Annapolis St. was electrified and completed February 28th. New track was built on Rice St. from Maryland Ave. to South St. and the entire line on Rice St. placed in operation February 28th.

New track built on Randolph Ave. from W. 7th St. to Mississippi River Boulevard, completed October 1st (operated as the "Randolph Extension" line).

New track built on Selby Ave. from Chatsworth St. to Fairview Ave., completed September 25th. It was operated as the "Electric Extension of the Selby Avenue Cable Line." Additional new track was constructed on Fairview Ave. from Selby Ave. to Marshall Ave., on Marshall Ave. from Fairview to Prior Ave., and on Prior Ave. from Marshall to St. Anthony Ave., completed October 28th. The entire line was then operated as the "Merriam Park Extension".

1892

Minneapolis

Double track built on Hawthorne Ave. from Lyndale Ave. N. to Aldrich Ave. N., on Aldrich to Laurel Ave., and on Laurel Ave. to Irving Ave. N.; single track built on Laurel Ave. from Irving Ave. to Oliver Ave. N., all completed August 4th.

Double track built on Penn Ave. N. from 30th to 32nd Ave. N.

Double track built on 3rd St. from Hennepin Ave. to 3rd Ave. N., and on 3rd Ave. N. from 3rd St. to Washington Ave.

St. Paul

Double track built on Jackson St. from 5th St. to Maryland Ave., completed May 12th.

Double track built on Como Ave. from Front St. and Dale St. to Como Park, with a loop at Como Park (later replaced with a wye), completed September 7th.

Frank Trumbull's Inspection 1-18-1893

Mr. Trumbull's report contains a comprehensive summary of the track mileage and rail weights as of the end of 1892 which is summarized in the following paragraphs.

Track Mileage	Minneapolis	St. Paul	
Electric	114.413	85.050	
Cable			
Selby Ave.		5.782	
E. 7th St.		5.370	
Total Cable		11.152	
Totals	114.413	96.202	210.615

Maximum Grade: Minneapolis, 5.6%; St. Paul, 6.0% except for Selby Hill which was 16%.

Overhead Construction: Minneapolis: center poles with brackets; St. Paul: side poles with span wire.

Rail Data (Electric Lines):

Weight	Type	L.F. in Mpls.	L.F. in St. Paul
78	Girder	93,838	9,208
60	T	63,153	90,725
53	Girder	—	89,842
52	Johnston	2,000	204,636
51	Johnston	77,600	—
50	T	20,000	46,539
45	T	33,000	—
45	Johnston	266,700	—
40	T	49,200	—
36	Flat	—	8,424
Cast		—	933
Totals		605,491	450,307
Rail Data (Cable Lines):			
54	Cable		11.152 miles

The data in the above chart indicates that the earlier reported standard type of construction in unpaved streets utilizing 70 lb. Trail had not yet been put in effect; it is also interesting to note the considerable mileage of lighter rail in use, especially in Minneapolis, and the apparent use of old horsecar rail in St. Paul.

1893

Minneapolis

Single track built on Bryant Ave. So. from 38th St. to 46th St., completed August 26th.

Single track built on Central Ave. N.E. from 29th Ave. N.E. to 40th Ave. N.E.

Second track added on Emerson Ave. N. from 20th Ave. N. to 26th Ave. N.

Double track built on 31st St. from Nicollet Ave. to 4th Ave. So.

Double track built on 6th Ave. N. from Penn Ave. N. to Russell Ave. N., completed November 23rd.

St. Paul

Double track built on Rondo Ave. from Dale St. to Miller St. (now Avon St.), completed August 14th.

Single track built on Prior Ave. from St. Anthony Ave. to University Ave., completed September 30th.

It was decided to convert the East 7th St. cable line to electric operation; the electric cars were operating in the snow more effectively than the cable cars and the grade on this line was not beyond the capacity of adhesion. Electrification of the line was completed September 1, 1893.

St. Paul 1894

Track built on Earl St. from Hastings Ave. (now Hudson Rd.) to Indian Mounds Park, completed May 24th.

Track built on Stryker Ave. from Winifred St. to Annapolis St., completed July 1st.

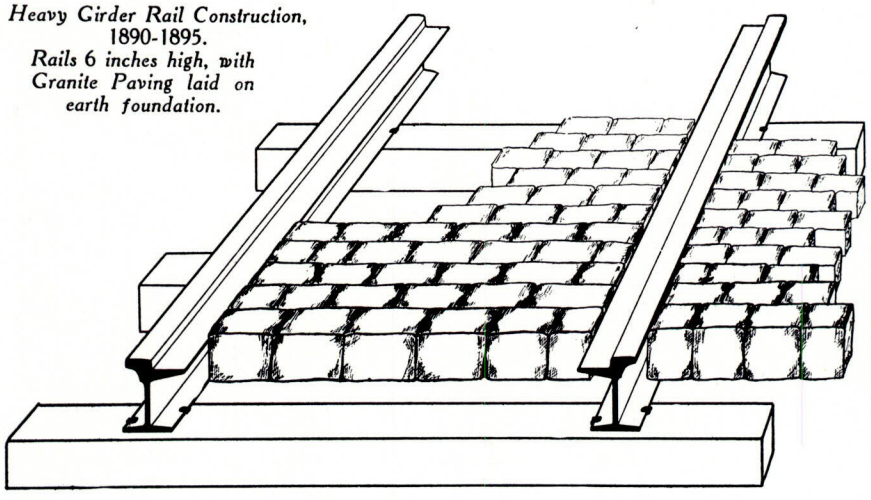
An 1894 directory provided the following data:

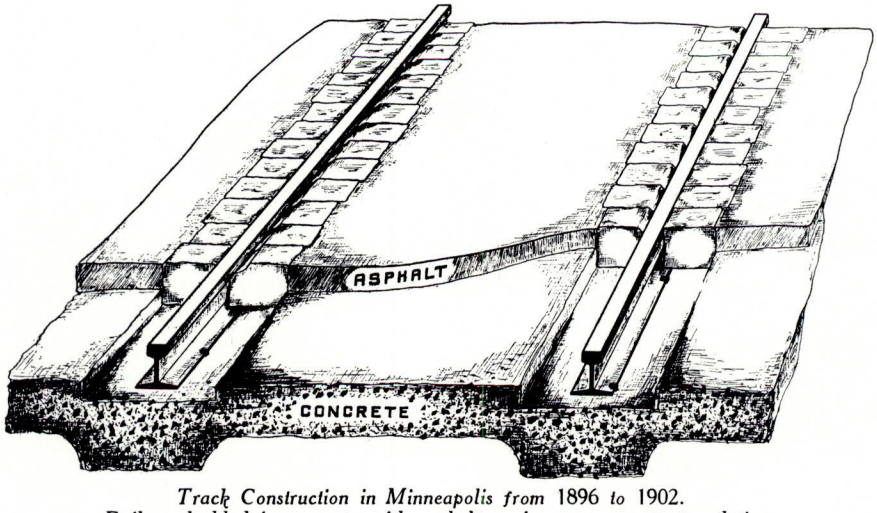
	Electric- Track Miles	**Cable-** Track Miles
Minneapolis	122.373	—
St. Paul	93.632	5.874

Frank Trumbull reported the following track mileage on his second inspection during June, 1894:

	Minneapolis	**St. Paul**	**Total**
Track Miles - Electric	122.373	95.345	217.718
Track Miles - Cable	—	6.263	6.263
Track Miles - Total	122.373	101.608	223.981

Heavy Girder Rail Construction, 1890-1895. Rails 6 inches high, with Granite Paving laid on earth foundation.





Track Construction in Minneapolis from 1896 to 1902. Rails embedded in concrete with asphalt paving on concrete foundation. Ties spaced 10 feet apart.

A double truck open car of the "Lake Harriet" line on Hennepin Ave. at Dupont or Emerson Ave. in the late 1890's. Hennepin Ave. was then a boulevard from Groveland Ave. to Lake St. (Minnesota Historical Society collection)

1896

Minneapolis

Second track added on Douglas Ave. from Hennepin Ave. to Knox Ave.

Previous to 1896, the only paving in Minneapolis was macadam, old fashioned untreated cedar blocks laid upon pine boards, or granite blocks laid on a sand base. For a number of years, owing to the wretched condition of the business streets, the city council had been making an investigation of the problem with the idea of deciding upon a more satisfactory type of paving. In the spring of 1896, the council decided to experiment with asphalt and made a contract for the paving of the business district streets with that material. MSR made a vigorous protest against the use of asphalt in or adjacent to car tracks, as the life of this paving depended on a rigid foundation and it was not thought possible to wholly prevent vibration due to the operation of streetcars. The asphalt paving having been ordered, MSR put in the highest grade of construction its engineers could devise: crossties were spaced 10' apart laid in a solid bed of portland cement concrete; 8" 79 lb. shanghai T rails 60' long with cast-welded joints were fastened to longitudinal concrete beams tied together by the same bed of concrete that held the ties.

Traffic was kept off the streets for 14 days to allow the concrete to harden. This resulted in serious interruption to service and consequent loss of business. Track and paving were completed at a cost of $33,908 per mile of double track. Total mileage of this type of construction was 43.6 miles.

1897

Minneapolis

Track was abandoned on 3rd St. from Hennepin Ave. to 3rd Ave. No. and on 3rd Ave. No. from 3rd St. to Washington Ave.

Double track built on 5th St. No. from Hennepin Ave. to 6th Ave. No. Track was abandoned on 6th Ave. No. from Washington Ave. N. to 5th St. N.

1898

Minneapolis

Second track added on Nicollet Ave. from 37th St. to 40th St.

The paving laid during 1896 showed signs of disintegration adjacent to the tracks in a very short time after completion. Repairs were begun during 1898 and continued without interruption until 1906. During this period the entire 43.6 miles of track built with this type of construction was taken up and replaced.

St. Paul

Single track built on 3rd St. from Robert St. to Sibley St. and on Sibley St. from 3rd St. to 5th St., completed November 1st.

Minneapolis-St. Paul

Double track built in Minneapolis on Como Ave. S.E. from 15th Ave. S.E. to Eustis St. Double track built in St. Paul on Como Ave. from Eustis St. (where it connected with the newly built Minneapolis trackage) to Langford Ave. and from Snelling Ave. to Como Park, connecting with existing trackage. All of this newly built trackage connected with existing portions of each system to form a second interurban line between Minneapolis and St. Paul; this new line was opened July 1st and was known as the "Como Interurban" or "Como-Interurban-Harriet".

Selby Hill Counterweight System

Frank Trumbull, on his second visit in 1894, had advocated conversion of the "Selby Avenue" cable line to electric operation with the exception of the portion on Selby Hill itself. Presumably the company's financial problems prevented this from being done. As conditions improved plans for the conversion were developed. The "Selby Ave." cable line was electrified from downtown St. Paul to Chatsworth during 1898 except for a modern counterweight system which was installed on Selby Hill to overcome the 16% grade. The all new track construction utilized 80 lb. T rail in concrete. Cable cars ceased running June 3, 1898. Electric cars were re-routed over the Rondo Ave. line and temporary track to provide service as construction progressed. The first electric car ascended Selby Hill on the new counterweight system on August 3, 1898.

The Selby Hill counterweight system was designed by Milton H. Bronsdon of the Providence (R.I.) Cable Tramway; the construction drawings are titled "Bronsdon's Compound Counterweight System for Selby Hill, St. Paul, Minn.". Each track was equipped with its individual counterweight unit so that cars could both ascend and descend on each track independently. One track was designated as Line A and the other as Line B. To facilitate flexibility two scissors crossovers were installed, one west of Selby Ave. and Summit Ave. and the other east of W. 3rd St. and Pleasant Ave.

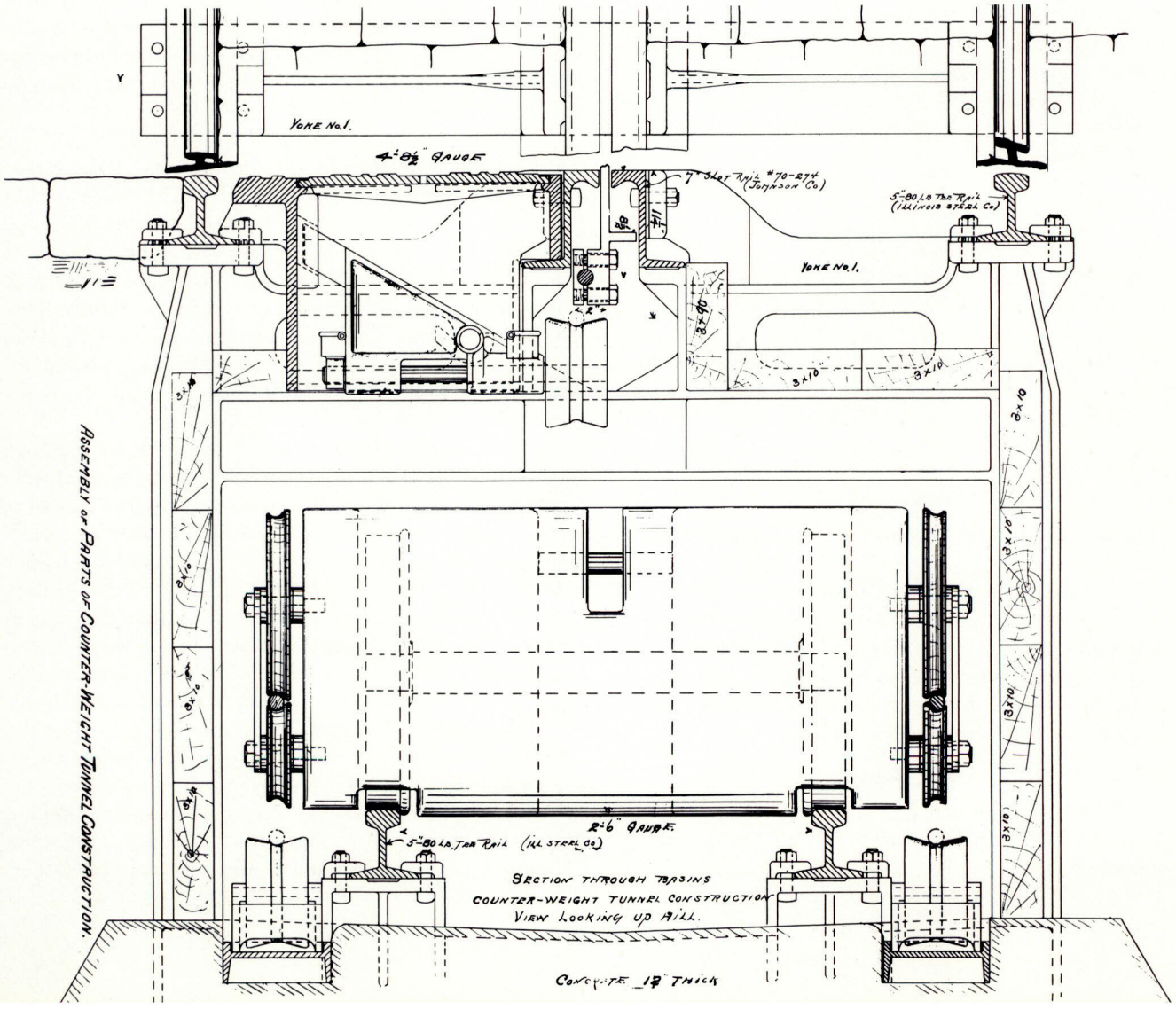
The underground construction on *each* track involved an Upper Terminal (at Selby and Summit), a Middle Terminal (where the east portal of the Selby Tunnel is now), and a Lower Terminal (at 3rd St. and Pleasant). Specially designed yokes installed between the Upper and Middle Terminal contained the conduit and pulleys for the cable as well as forming the tunnel framing in which the counterweight unit ran; the cable and grip operated in the upper conduit while the counterweight unit operated in the lower conduit or tunnel. Each Upper Terminal consisted of a grip stop, terminal sheaves for the cable, and a buffer (a timber mounted on coil springs). Each Middle Terminal consisted of terminal sheaves for the cable, a tension weight and pit for same (for keeping the cable taut), and a buffer. The distance between the Upper and Middle Terminal buffer faces was 483.5 feet.

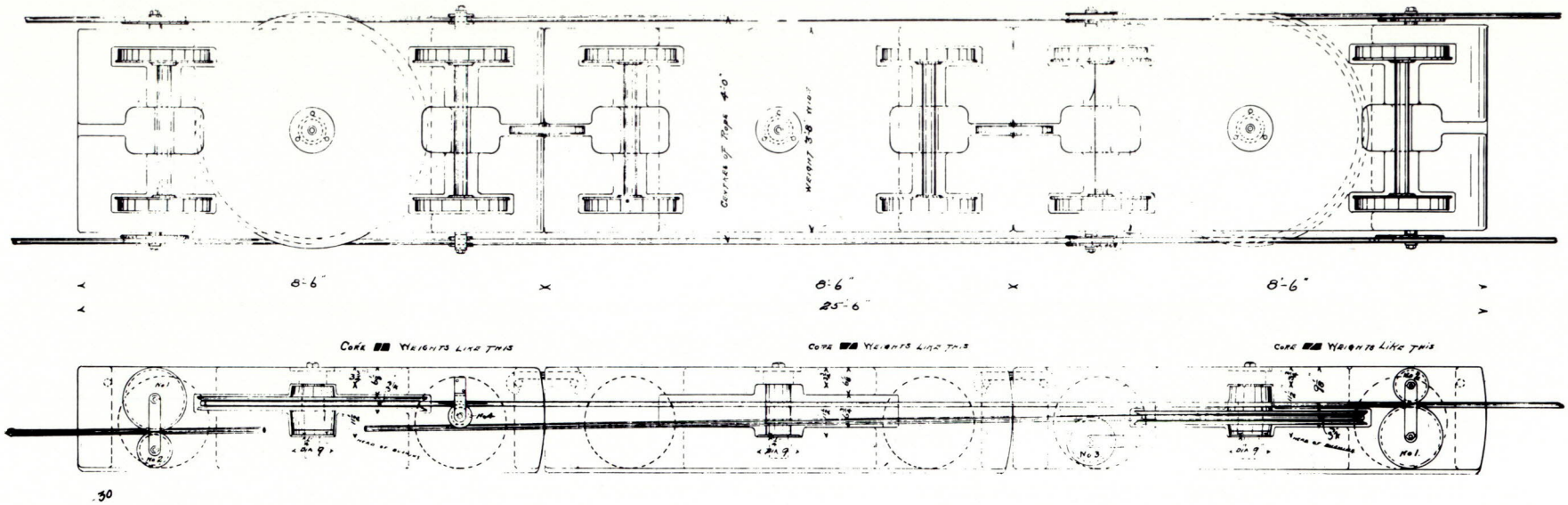
Yokes installed between the Middle and Lower Terminal formed the conduit for the cable and contained the sheaves and pulleys for the cable. Each Lower Terminal consisted of terminal sheaves for the cable and a grip release device at the end of the slot rail. There was a 199.7 ft. radius double track curve between the Middle and Lower Terminals which further complicated the construction. Each counterweight unit ran only between the Upper and Middle Terminal.

The grips were attached permanently to the cables by means of clamps secured by bolts. At the top of each grip was an automatic gripping device. Each grip car was equipped with a grip blade which could be automatically attached to or released from the grip itself by the grip release device in each Lower Terminal.

With the counterweight unit at the Middle Terminal and the grip at the Upper Terminal, 1⅛" diameter cable led as follows: One end was permanently fastened to a beam in the upper end of the Upper Terminal, then to and around the 48" diameter sheave set in the lower counterweight section, back to the Upper Terminal and around a 60" diameter sheave set at an angle of 75 degrees which placed the cable in the upper conduit where the grip was attached. From there it led through the conduit, passing through the Middle Terminal and down to the Lower Terminal. After passing around sheaves in the Lower Terminal it returned in the conduit back to the Middle Terminal where it was diverged downward by other sheaves into the counterweight tunnel, then to and around the 48" diameter horizontal sheave set in the upper counterweight section. It then led back a short distance down grade to and around a 24" diameter sheave and down to a connection with the 2200 lb. tension weight at the bottom of a 13' well, all in the Middle Terminal.

A grip car, electrically operated (traction motors and overhead trolley), ran on each track, "pushing" regular cars up the hill (the regular cars also used their traction motors to assist in the process) and leading them down the hill. The special function of the grip car was to engage the grip on the cable by means of its grip blade and then by setting the cable in motion, cause the counterweight unit to operate, balancing the weight of the grip car and regular car. Thus, while the counterweight unit itself operated only between the Upper and Middle Terminal, the grip car was attached to and under the control of the cable the entire distance between the Upper and Lower Terminal.

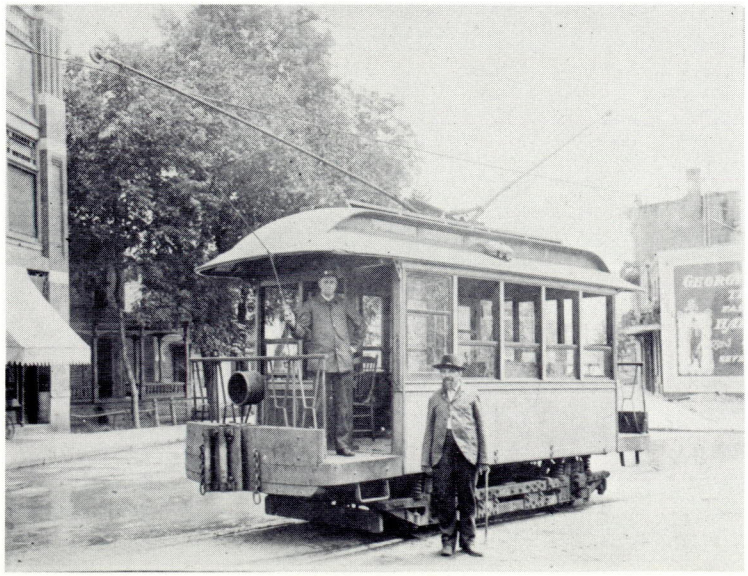


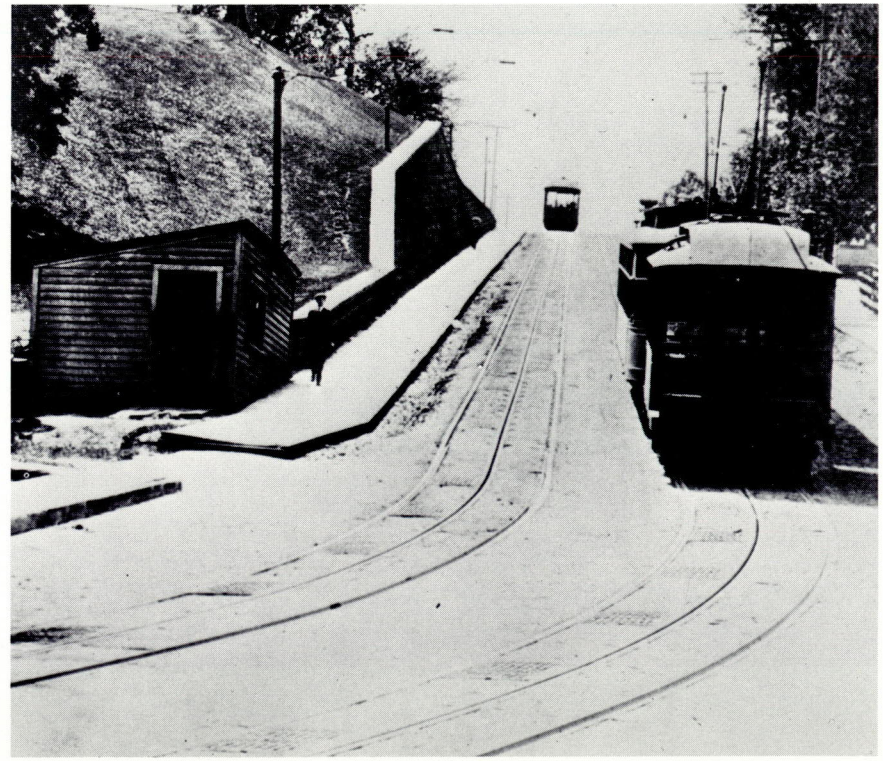


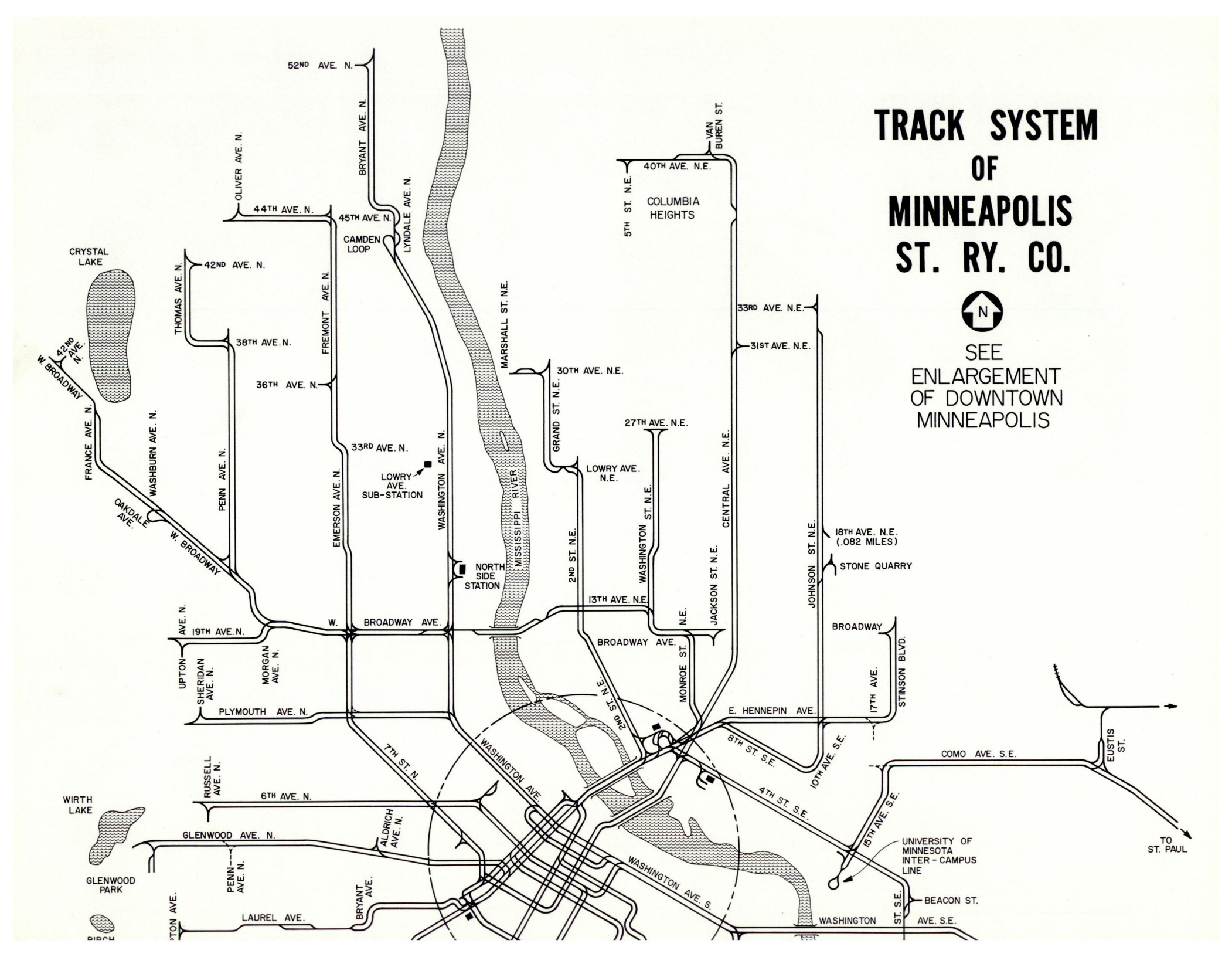
Top and side elevations of a counterweight unit. (Paul Joyce collection)

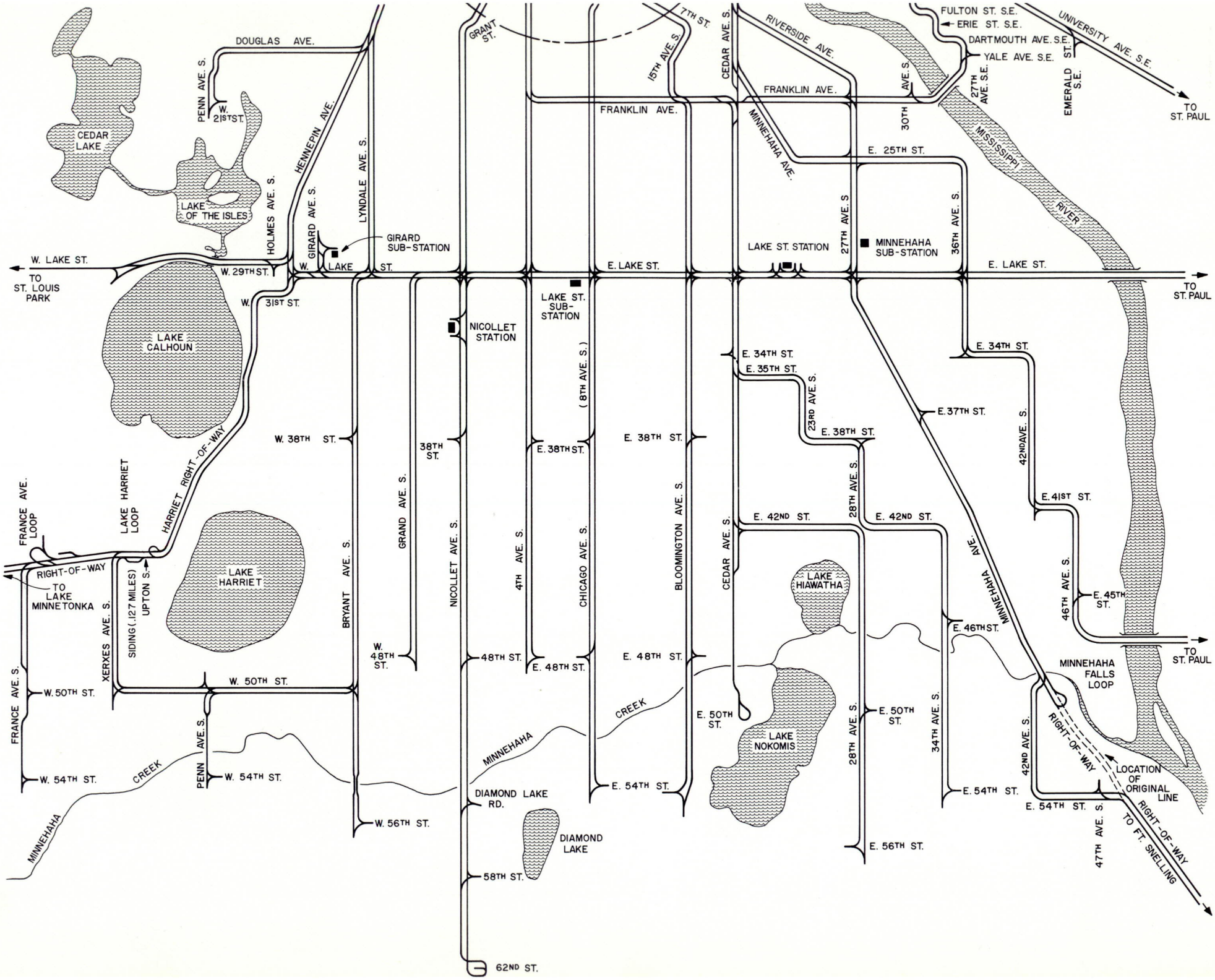
Below left: One of the cars equipped to operate the counterweight system on Selby Hill, at the crossover on W. 3rd St. (Joe Hutchinson collection)

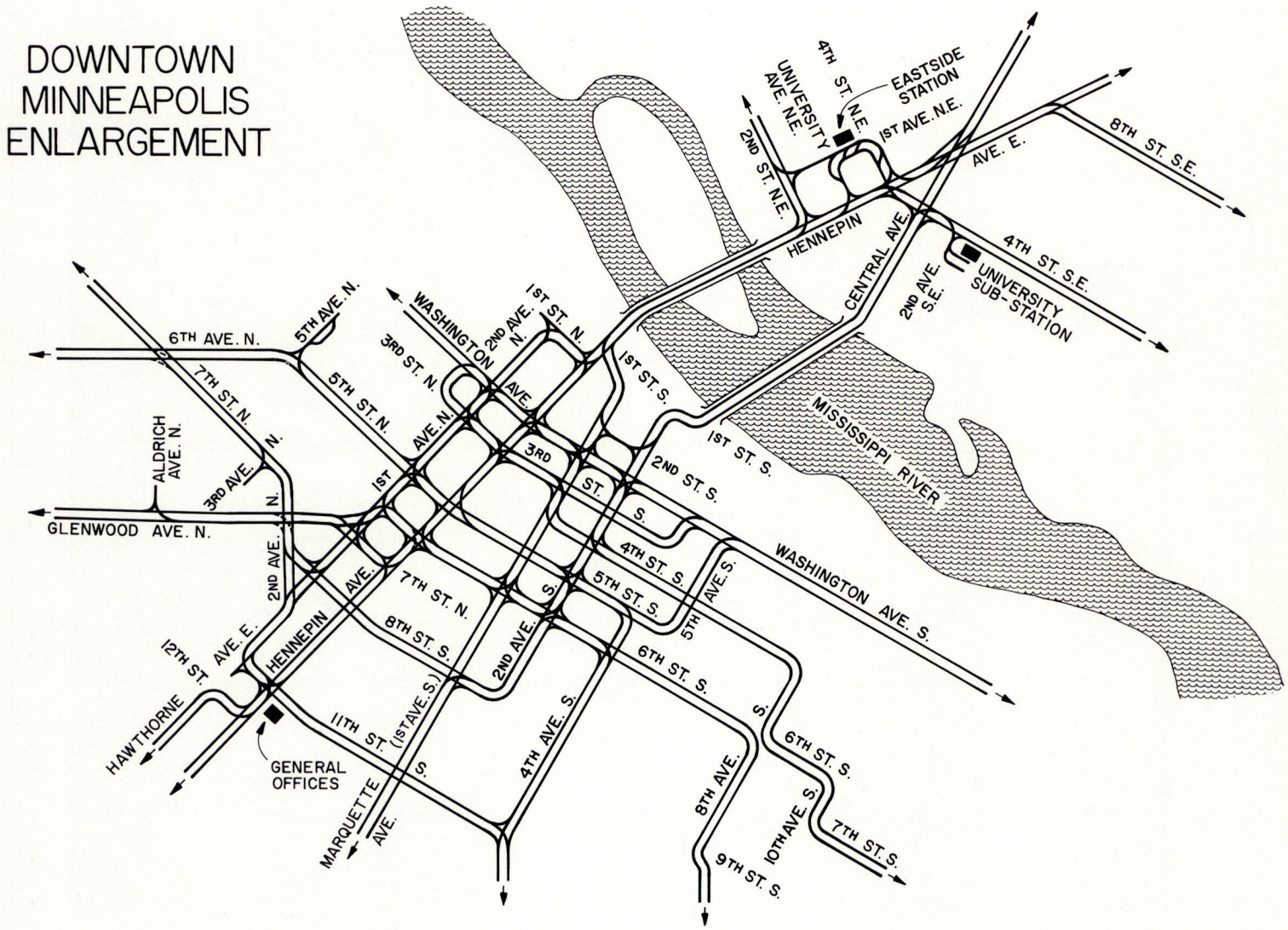
Below right: Operation on the counterweight system. The small frame building in the center of the photograph is a brake house which contained a large flywheel connected by a shaft and gears to a roller chain driven mechanism located between the running and slot rails of the eastbound (descending) track. A drawing dated October, 1892, indicates this was an emergency braking system installed on the original cable line. (Minnesota Historical Society collection)

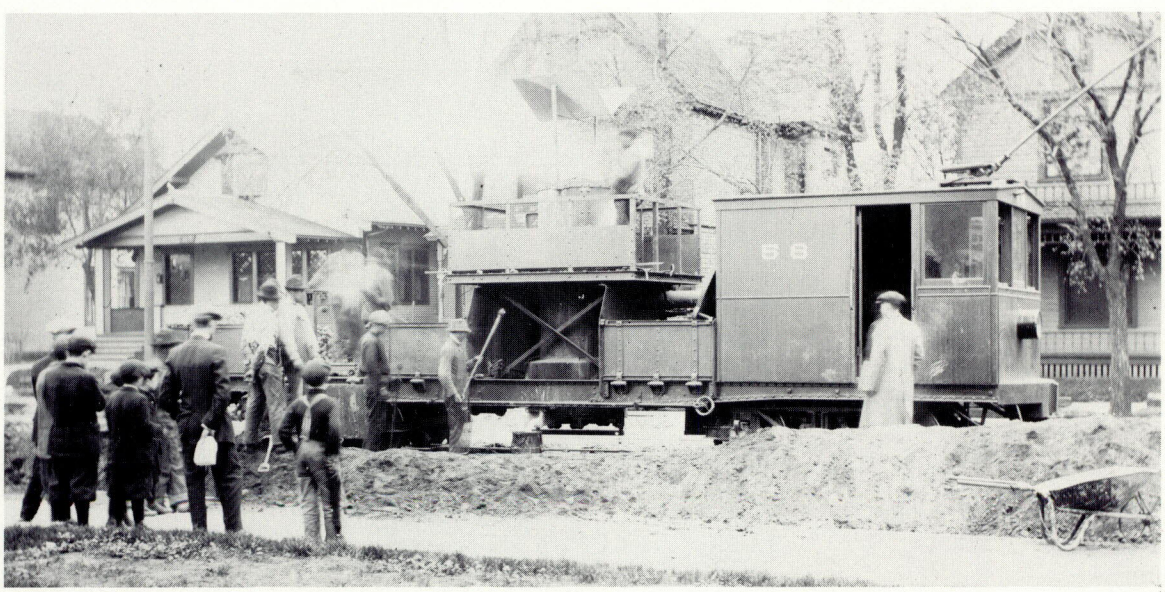





TRACK SYSTEM
OF
MINNEAPOLIS
ST. RY. CO.
N
SEE
ENLARGEMENT
OF DOWNTOWN
MINNEAPOLIS
52ND AVE. N.
BRYANT AVE. N.
OLIVER AVE. N.
44TH AVE. N.
45TH AVE. N.
LYNDALE AVE. N.
CAMDEN LOOP
CRYSTAL LAKE
42ND AVE. N.
THOMAS AVE. N.
FREMONT AVE. N.
38TH AVE. N.
36TH AVE. N.
42ND AVE. N.
W. BROADWAY
FRANCE AVE. N.
WASHBURN AVE. N.
OAKDALE AVE.
PENN AVE. N.
EMERSON AVE. N.
33RD AVE. N.
LOWRY AVE. SUB-STATION
WASHINGTON AVE. N.
NORTH SIDE STATION
MISSISSIPPI RIVER
MARSHALL ST. N.E.
GRAND ST. N.E.
30TH AVE. N.E.
2ND ST. N.E.
LOWRY AVE. N.E.
27TH AVE. N.E.
WASHINGTON ST. N.E.
JACKSON ST. N.E.
CENTRAL AVE. N.E.
33RD AVE. N.E.
31ST AVE. N.E.
JOHNSON ST. N.E.
18TH AVE. N.E. (.082 MILES)
STONE QUARRY
40TH AVE. N.E.
5TH ST. N.E.
COLUMBIA HEIGHTS
VAN BUREN ST.
13TH AVE. N.E.
W. BROADWAY AVE.
BROADWAY AVE.
BROADWAY
STINSON BLVD.
17TH AVE.
19TH AVE. N.
UPTON AVE. N.
SHERIDAN AVE. N.
MORGAN AVE. N.
PLYMOUTH AVE. N.
MONROE ST.
E. HENNEPIN AVE.
2ND ST. N.E.
7TH ST. N.
WASHINGTON AVE.
8TH ST. S.E.
10TH AVE. S.E.
COMO AVE. S.E.
EUSTIS ST.
TO ST. PAUL
4TH ST. S.E.
15TH AVE. S.E.
UNIVERSITY OF MINNESOTA INTER-CAMPUS LINE
BEACON ST.
WASHINGTON AVE. S.
WASHINGTON AVE. S.E.
RUSSELL AVE. N.
6TH AVE. N.
WIRTH LAKE
GLENWOOD AVE. N.
ALDRICH AVE. N.
PENN AVE. N.
GLENWOOD PARK
BRYANT AVE.
LAUREL AVE.

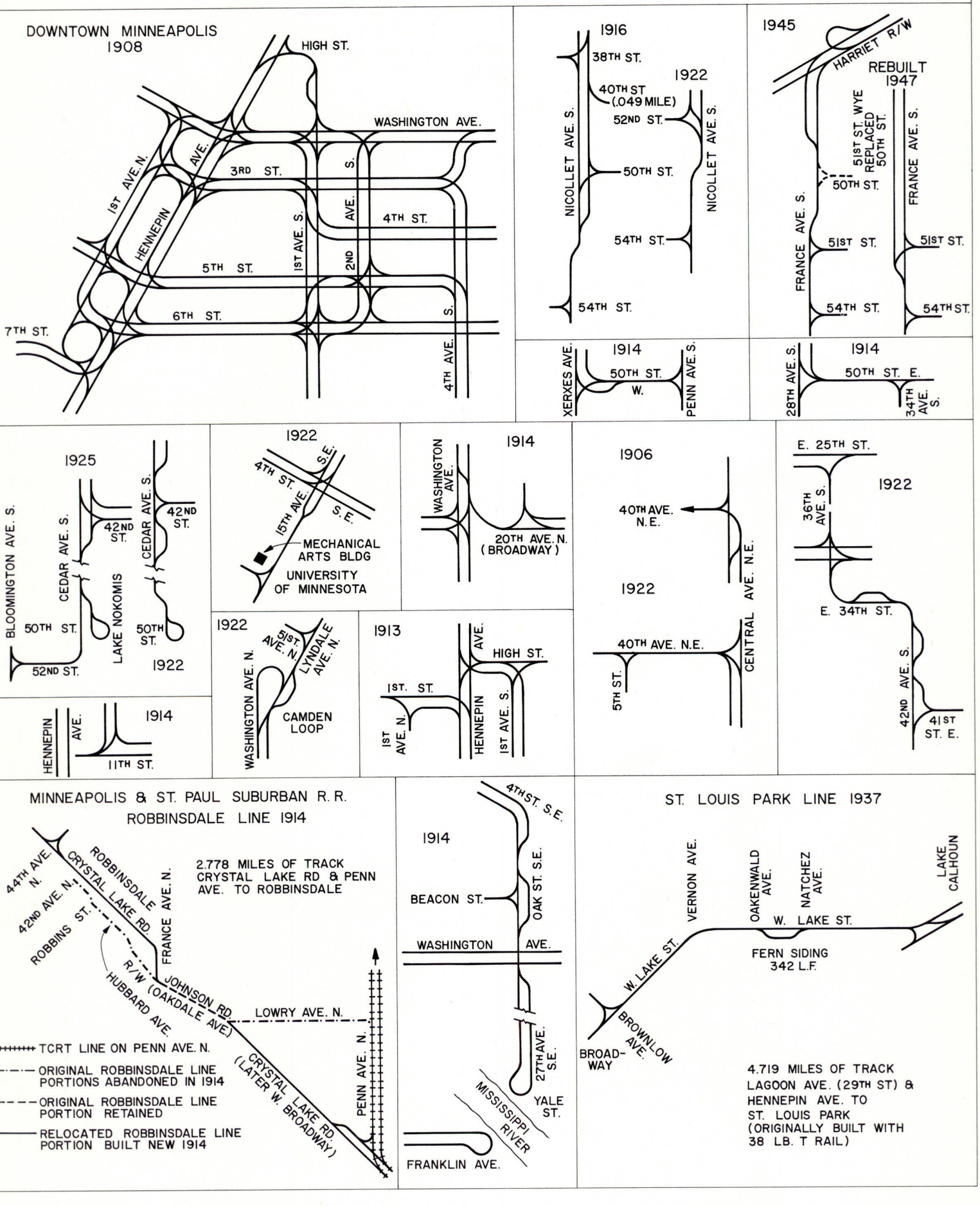

DOUGLAS AVE.
PENN AVE. S.
W. 21ST ST.
CEDAR LAKE
LAKE OF THE ISLES
HOLMES AVE. S.
HENNEPIN AVE.
GIRARD AVE. S.
LYNDALE AVE. S.
GIRARD SUB-STATION
W. LAKE ST.
TO ST. LOUIS PARK
W. 29TH ST.
W. 31ST ST.
LAKE CALHOUN
HARRIET RIGHT-OF-WAY
FRANCE AVE. LOOP
LAKE HARRIET LOOP
RIGHT-OF-WAY TO LAKE MINNETONKA
XERXES AVE. S.
SIDING (.127 MILES) UPTON S.
LAKE HARRIET
FRANCE AVE. S.
W. 50TH ST.
W. 54TH ST.
PENN AVE. S.
MINNEHAHA CREEK
W. 56TH ST.
BRYANT AVE. S.
GRAND AVE. S.
W. 38TH ST.
W. 48TH ST.
GRANT ST.
7TH ST.
15TH AVE. S.
NICOLLET STATION
NICOLLET AVE. S.
38TH ST.
48TH ST.
DIAMOND LAKE RD.
58TH ST.
62ND ST.
DIAMOND LAKE
LAKE ST. SUB-STATION
(8TH AVE. S.)
4TH AVE. S.
CHICAGO AVE. S.
E. 38TH ST.
E. 48TH ST.
E. 54TH ST.
CEDAR AVE. S.
RIVERSIDE AVE.
FRANKLIN AVE.
E. LAKE ST.
LAKE ST. STATION
MINNEHAHA AVE.
E. 25TH ST.
27TH AVE. S.
MINNEHAHA SUB-STATION
BLOOMINGTON AVE. S.
E. 34TH ST.
E. 35TH ST.
23RD AVE. S.
E. 37TH ST.
E. 38TH ST.
28TH AVE. S.
E. 42ND ST.
LAKE HIAWATHA
LAKE NOKOMIS
E. 50TH ST.
E. 56TH ST.
34TH AVE. S.
E. 46TH ST.
MINNEHAHA AVE.
30TH AVE. S.
FULTON ST. S.E.
ERIE ST. S.E.
DARTMOUTH AVE. S.E.
YALE AVE. S.E.
27TH AVE. S.E.
EMERALD ST. S.E.
UNIVERSITY AVE. S.E.
TO ST. PAUL
MISSISSIPPI RIVER
36TH AVE. S.
42ND AVE. S.
E. 41ST ST.
46TH AVE. S.
E. 45TH ST.
MINNEHAHA FALLS LOOP
RIGHT-OF-WAY
LOCATION OF ORIGINAL LINE
47TH AVE. S.
TO FT. SNELLING

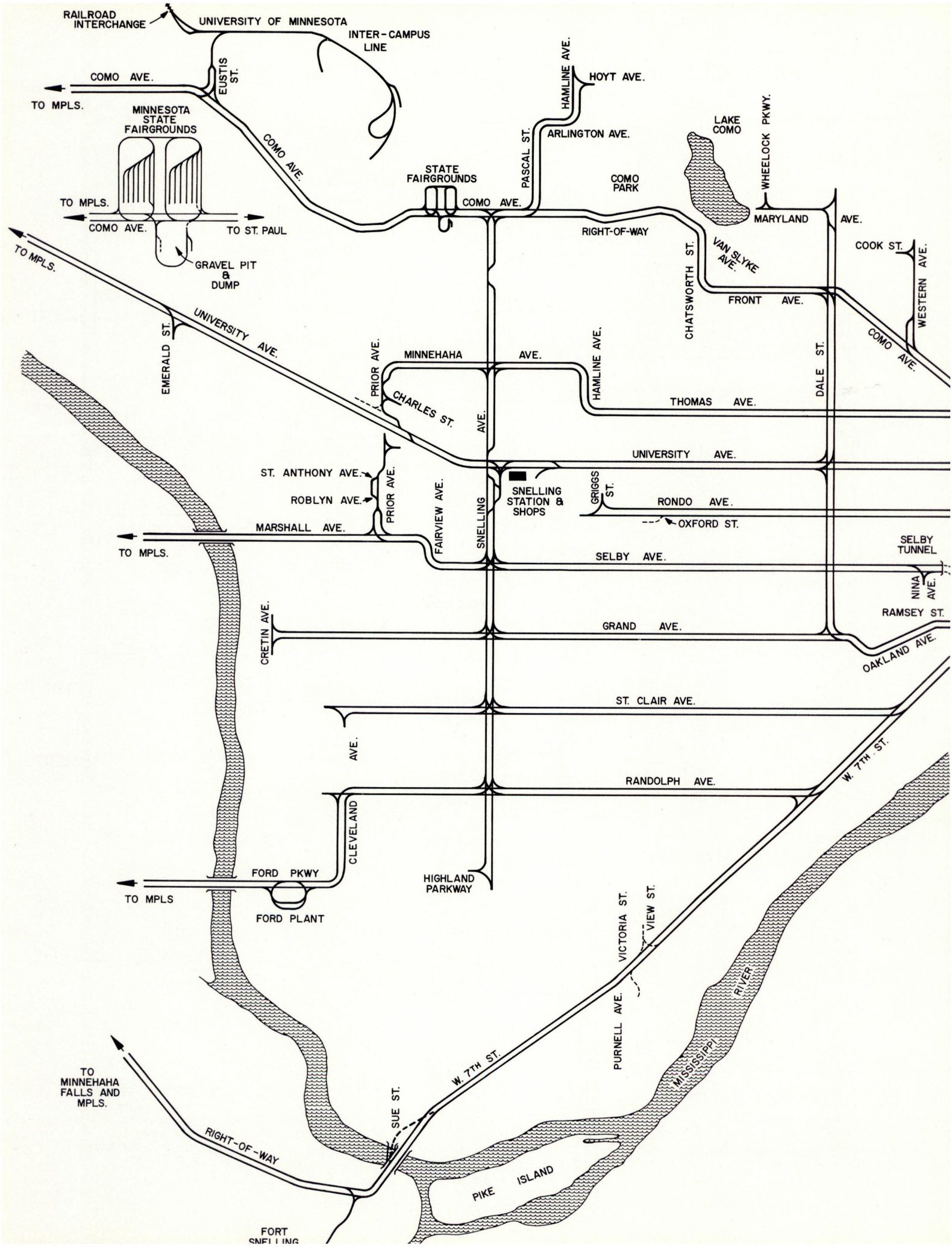


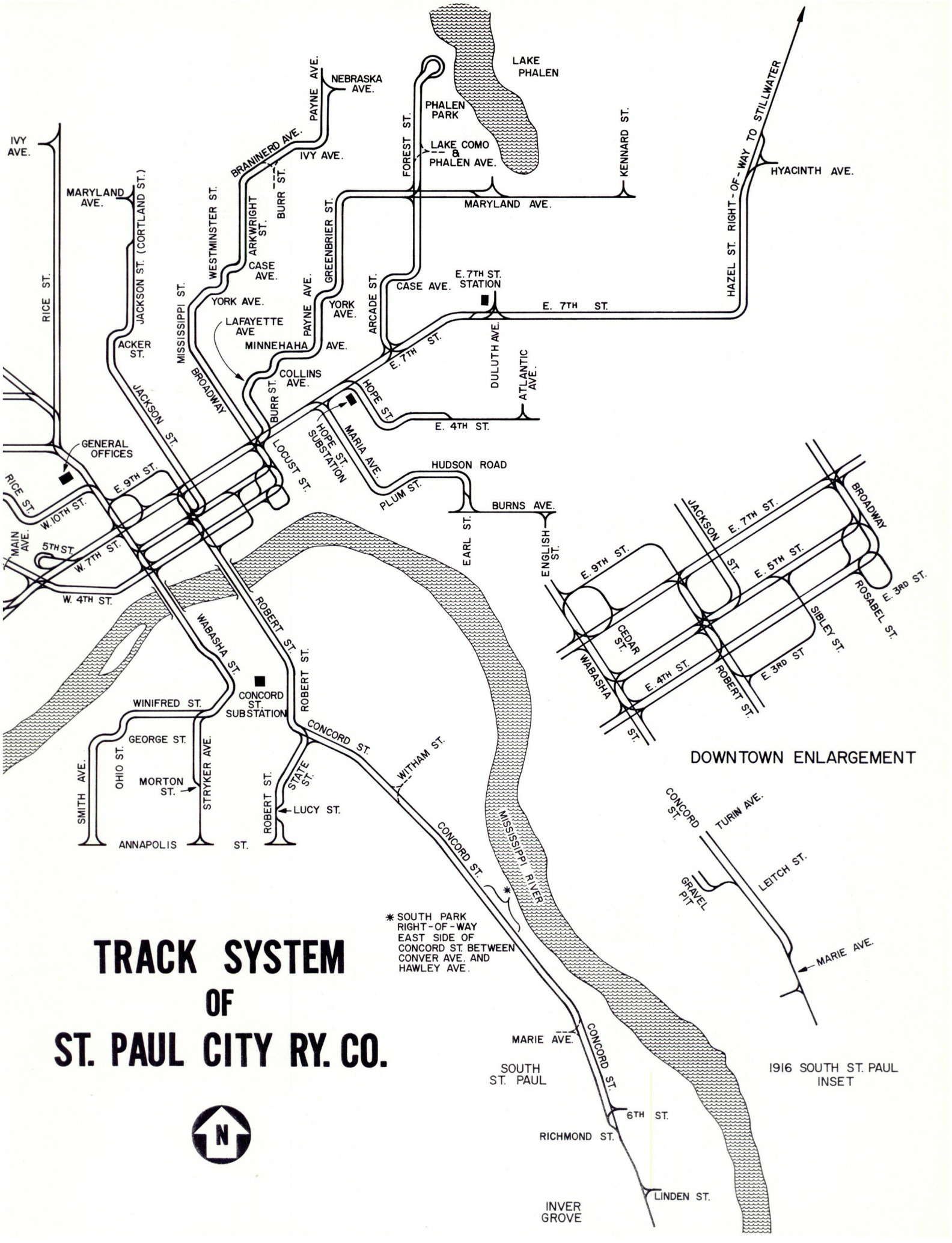


A Cupola car in operation producing molten metal (using thermite) for cast welded rail joints. The spectators on the sidewalk seem fascinated by the process. (TCRT)

MINNEAPOLIS MISCELLANEOUS TRACKAGE DETAILS 1906-1947

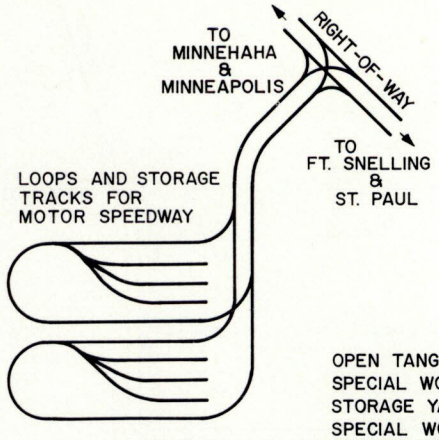



RAILROAD INTERCHANGE
UNIVERSITY OF MINNESOTA
INTER-CAMPUS LINE
COMO AVE.
TO MPLS.
EUSTIS ST.
MINNESOTA STATE FAIRGROUNDS
COMO AVE.
HAMLINE AVE.
HOYT AVE.
ARLINGTON AVE.
PASCAL ST.
LAKE COMO
WHEELOCK PKWY.
STATE FAIRGROUNDS
COMO PARK
MARYLAND AVE.
TO MPLS.
COMO AVE.
TO ST. PAUL
GRAVEL PIT & DUMP
RIGHT-OF-WAY
VAN SLYKE AVE.
COOK ST.
WESTERN AVE.
CHATSWORTH ST.
FRONT AVE.
TO MPLS.
UNIVERSITY AVE.
EMERALD ST.
COMO AVE.
PRIOR AVE.
MINNEHAHA AVE.
HAMLINE AVE.
DALE ST.
CHARLES ST.
AVE.
THOMAS AVE.
UNIVERSITY AVE.
ST. ANTHONY AVE.
ROBLYN AVE.
PRIOR AVE.
FAIRVIEW AVE.
SNELLING
SNELLING STATION & SHOPS
GRIGGS ST.
RONDO AVE.
OXFORD ST.
MARSHALL AVE.
TO MPLS.
SELBY AVE.
SELBY TUNNEL
NINA AVE.
RAMSEY ST.
CRETIN AVE.
GRAND AVE.
OAKLAND AVE.
ST. CLAIR AVE.
AVE.
RANDOLPH AVE.
W. 7TH ST.
CLEVELAND
FORD PKWY
TO MPLS
HIGHLAND PARKWAY
FORD PLANT
VICTORIA ST.
VIEW ST.
PURNELL AVE.
MISSISSIPPI RIVER
TO MINNEHAHA FALLS AND MPLS.
W. 7TH ST.
SUE ST.
RIGHT-OF-WAY
PIKE ISLAND
FORT SNELLING

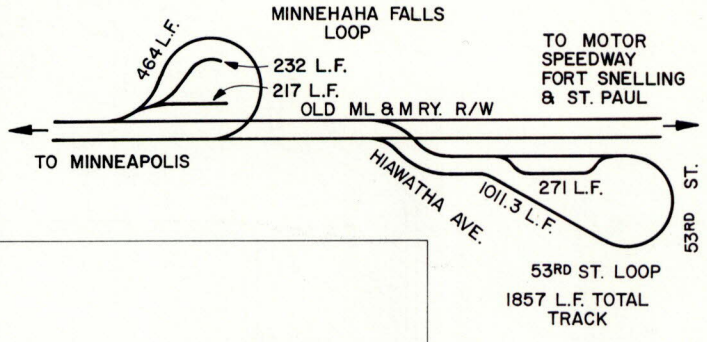


TRACK SYSTEM OF ST. PAUL CITY RY. CO.

MINNEAPOLIS - MINNEHAHA FALLS - FT. SNELLING RIGHT-OF-WAY TRACKAGE DETAILS



1915 - 1917

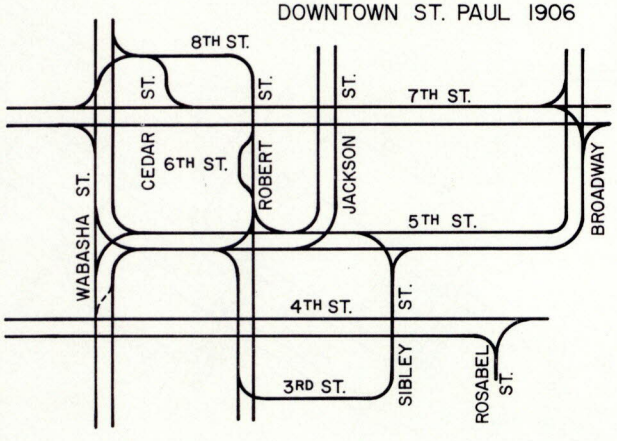


1915

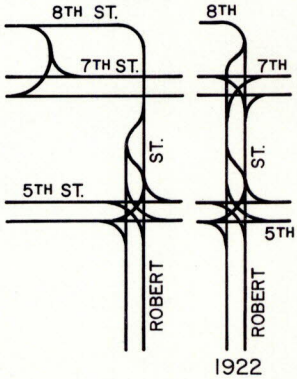
OPEN TANGENT TRACK	12320.6 L.F.
SPECIAL WORK (BRANCH OFF)	808.8 L.F.
STORAGE YARD TANGENT TRACKS	9706.5 L.F.
SPECIAL WORK - MINNEAPOLIS LOOP	820.4 L.F.
SPECIAL WORK - ST. PAUL LOOP	633.6 L.F.
SPECIAL WORK - EAST END LOOP	753.9 L.F.
TOTAL	25043.8 L.F.
OR	
4.743 MILES OF TRACK	

ST. PAUL MISCELLANEOUS TRACKAGE DETAILS 1898 - 1938

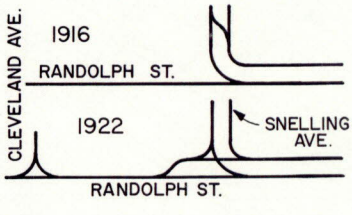
DOWNTOWN ST. PAUL 1906

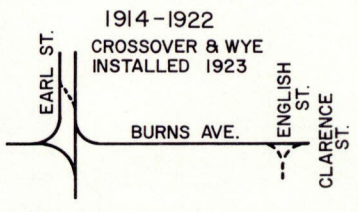


ROBERT ST. DEVELOPMENT

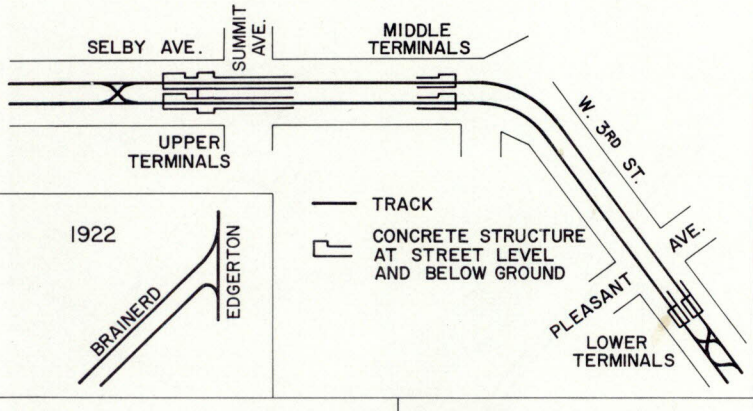


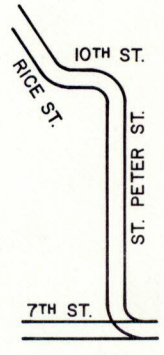
1922



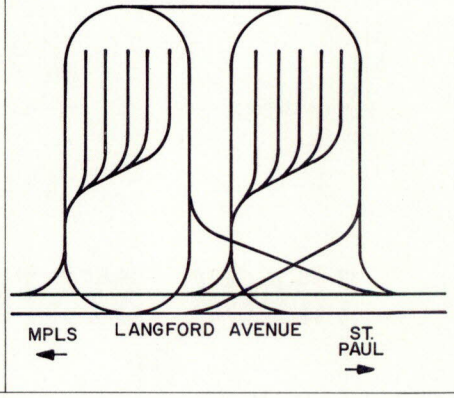


SELBY HILL COUNTERWEIGHT SYSTEM 1898

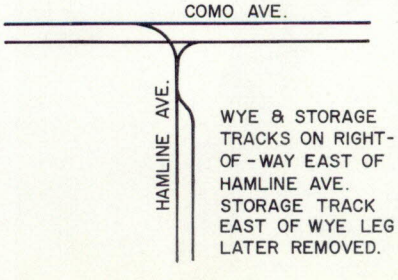




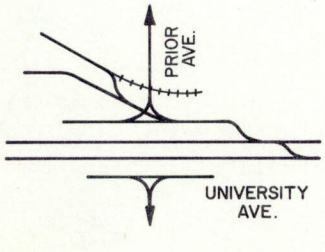
FAIR GROUNDS 1907



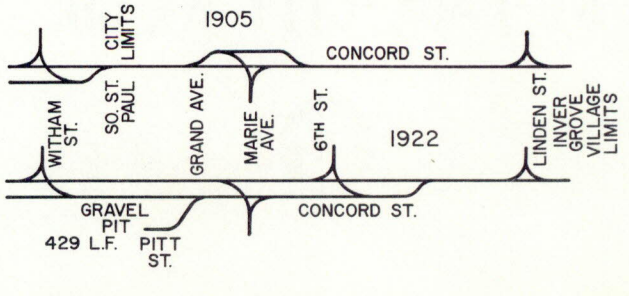
1922 COMO PARK



INTERSECTION OF PRIOR AVE. UNIVERSITY AVE. 1937 - 1938



SOUTH ST. PAUL - INVER GROVE LINE



1899

Minneapolis

Single track built on 8th St. S.E. from Central Ave. to 14th Ave. S.E.

Single track built on Lyndale Ave. N. from 42nd Ave. N. to 49th Ave. N., completed December 1st.

The center poles with side brackets for suspension of overhead trolley wire were replaced with side poles and span wire beginning in 1899 and continuing through 1908. TCRT developed its own design of iron pole which was manufactured in its shops.

1900

Minneapolis

Second track added on Douglas Ave. from Knox Ave. to Penn Ave. S.

St. Paul

Track was *abandoned* on Randolph Ave. from W. 7th St. to Mississippi River Blvd.

1901

Minneapolis

Second track added on Nicollet Ave. from 40th St. to 42nd St.

Second track was *abandoned* on Laurel Ave. from Colfax Ave. to Irving Ave. (.386 miles).

St. Paul

Total track mileage as of December 31, 1901 was 103.93 miles.

1902

Minneapolis

Second track added on Emerson Ave. N. from 26th Ave. N. to 29th Ave. N.

Entire System

The 1902 U.S. Census reported: first main track 136.41 miles, second main track 97.54 miles, sidings and carhouse track 17.07 miles, and total track 251.02 miles. Of this 251 miles of track, 76 miles had cast-welded joints, 25 miles consisted of 7" 80 lb. T rail on concrete beams 15" wide by 18½" deep with tie rods spaced 10' apart; track on unpaved streets was mostly 7" 80 lb. T rail with some quantity of 56 lb. and 60 lb. T rail.

1903

Minneapolis

Second track added on Penn Ave. So. from Douglas Ave. to 21st St.

Second track added on Nicollet Ave. So. from 42nd St. to 46th St.

Second track added on Bryant Ave. So. from 31st St. to 40th St.

The pavilion on the north shore of Lake Harriet built in 1891 was destroyed by fire February 6th. After the fire it was deemed undesirable that a pavilion located on park property should be operated by others than the Minneapolis Park Board. The $15,000-insurance proceeds received by MSR was donated to MPB for construction of a new pavilion. (The latter was completed in 1904 and destroyed by a windstorm in 1925.)

St. Paul

A trust agreement covering an issue of mortgage bonds indicated whether the various lines were double track or single track, or a combination of both. The following information was extracted from the document. South Robert St. was all single track from Concord St. to Annapolis St. West 7th St. was double track to Parnell St., and single track from there to the Fort Snelling bridge. Smith Ave. was single track from King St. to Annapolis St., while Stryker Ave. was all single track. The wording as to the Jackson St. line was difficult to interpret, but seemed to indicate that double track ended at 13th St., with single track from there to Maryland St.; this conflicts with the information listed under 1892.

1904

Minneapolis

Single track built on 8th Ave. So. (now Chicago Ave.) from 38th St. to 46th St., completed October 3rd.

Second track added on: Central Ave. N.E. from 29th Ave. to 40th Ave. N.E. and 8th St. S.E. from Central Ave. to 14th Ave. S.E.

St. Paul

During 1904 to 1906 track was built on Cedar St. from 7th St. to 8th St.

1905

Minneapolis

Double track built on Lake St. from Hennepin Ave. to 31st Ave. So., completed May 27th.

Double track built on Bloomington Ave. So. from 32nd St. to 34th St., completed August 7th.

Double track built on private right-of-way from Minnehaha Falls to Fort Snelling (with a loop at the Fort), completed August 21st.

Track was *abandoned* on 31st St. from Hennepin Ave. to 4th Ave. So. on September 15th.

Double track had been built at various times on certain downtown streets to provide additional routings through the downtown area in order to relieve congestion on the High St. loop: 1st Ave. N. from Washington Ave. to 5th St.; 5th St. So. from Hennepin Ave. to 4th Ave. So.; 4th Ave. So. from 3rd St. to Washington Ave.; 3rd St. N. from Hennepin Ave. to 1st Ave. N., and 3rd St. S. from Hennepin Ave. to 4th Ave. So., and 2nd Ave. So. from Washington Ave. to 6th St.

St. Paul

Double track built on Marshall St. from Prior Ave. to the east end of the Lake St. bridge, completed May 27th.

Double track built on Maryland Ave. from Greenbrier St. to Forest St., and on Forest St. to Phalen Park (with a loop in the Park), completed July 5th.

Double track on the Payne Ave. line was extended to Maryland Ave. and Greenbrier St., also completed July 5th.

Double track built on Concord St. from Witham St. to the South St. Paul city limits (Annapolis St.), completed July 22nd. Single track built on Concord St. from the South St. Paul city limits to the Inver Grove village limits at Linden St., completed August 1st.

Track built on Snelling Ave. from Minnehaha Ave. to Grand Ave., completed September 2nd.

Track built on Rondo Ave. from Miller St. to Chatsworth St., completed November 23rd.

1906

Minneapolis

Single track built on 40th Ave. N.E. from Central Ave. to 5th St. N.E. (.663 miles)

Second track added on Nicollet Ave. from 46th St. to 50th St.

A crossover was installed 300' west of the Lake Harriet platform on the Harriet Right-of-Way March 31st.

Additional track built in downtown Minneapolis: double track on 1st Ave. N. from 5th St. to 6th St.; single track on 1st Ave. N. from 6th St. to 7th St., and double track on 6th St. from 1st Ave. N. to Hennepin Ave.

Minneapolis-St. Paul

Double track built in Minneapolis on Lake St. from 31st Ave. So. to and over the newly constructed Lake St. bridge over the Mississippi River connecting with the newly built double track in St. Paul on Marshall Ave. from Prior Ave. to the new bridge. Thus a third interurban line between Minneapolis and St. Paul was completed May 21st; it was named the "Selby-Lake" line. The wye at 31st Ave. S. and Lake St. was relocated to 33rd Ave. S., August 25th.

St. Paul

Double track built on Thomas Ave. from Como Ave. to Hamline Ave., on Hamline Ave. from Thomas to Minnehaha Ave., on Minnehaha Ave. from Snelling Ave. to Prior Ave., and on Prior Ave. from Minnehaha Ave. to University Ave. Track was *abandoned* on Lexington Ave. from University Ave. to Minnehaha Ave. and on Minnehaha Ave. from Lexington Ave. to Hamline Ave. All of this work was completed June 29th.

Track built on Randolph Ave. from 7th St. W. to Pascal St., completed July 14th.

During 1905, a decision was made to tunnel through Selby Hill in order to reduce the grade and eliminate the slow counterweight system. The first construction work on the new tunnel began October 10, 1906, thus causing abandonment of the counterweight system. Temporary track was built on Farrington St. from Selby Ave. to Rondo Ave. so that "Selby-Lake" and "Merriam Park" line cars could operate over the Rondo Ave. trackage to downtown St. Paul and the 4th St.-Broadway loop. Temporary track was built on Smith Ave. and W. 3rd St., completed December 19th, so that cars used the Rondo Ave. line to Rice & College; then this temporary track to 3rd St. W. and then over the regular route on W. 3rd St. to downtown St. Paul.

1907

Minneapolis

Second track added on Emerson Ave. N. from 29th Ave. N. to 32nd Ave. N.; new double track built on Emerson Ave. N. from 32nd to 33rd Ave. N., on 33rd Ave. N. from Emerson to Fremont Ave. N., and on Fremont Ave. N. from 33rd to 36th Ave. N., all completed May 19th.

Double track built on Oak St. S.E. from Washington Ave. S.E. to Fulton St. S.E.; single track built on Fulton St. to Erie St. S.E., on Erie St. to Dartmouth Ave. S.E., and on Dartmouth Ave. to Superior St. S.E., all completed September 13th.

Double track built on Grand Ave. So. from Lake St. to 40th St., completed November 18th.

St. Paul

The Selby Tunnel was completed August 11th with the first cars to operate through the tunnel being 1258 and 1259. The tunnel itself was 1500' long on a 7% grade, 50' deep at its greatest depth, 23' between walls, 15' high, and required the removal of 43,200 cubic yards of earth plus 2,100 cubic yards of rock. Walls were reinforced by 164 tons of steel rod and 252 tons of steel rails; 10,300 cubic yards of concrete (requiring 12,000 barrels of cement) were used in pouring the walls. Total cost of constructing the tunnel was $366,393.00. Motormen were required to take a minimum of one minute and fifty seconds downgrade between portals, and not exceed 8 m.p.h.

St. Louis Park-Hopkins

The track between St. Louis Park and Hopkins, from W. Lake St. and Broadway Ave. to Hopkins was abandoned about May 1st (for certain by May 16th).

1908

Minneapolis

Second track added on Bryant Ave. So. from 40th to 46th St.

Preparations were underway in December, 1908, to standardize the Robbinsdale line.

St. Paul

The Ryan Hotel side track at 6th St. and Robert St. was completed July 7th.

The wye at Concord St. and Arthur St. was moved April 4th to Concord St. and Witham St.

Two views of the Selby Tunnel: looking west, above left, and looking east, above right. (R. Donald Ross; Ken Fletcher collection)

Right: The 42nd St. Station on the Harriet right-of-way, Minneapolis. The building was owned by the Minneapolis Park Board, while the canopy and concrete platform were owned by TCRT. (R. Donald Ross; Ken Fletcher collection)

Bottom right: Two views of the "Fort Snelling Extension" line, later known as the "Fort Snelling Stub", looking south on October 14, 1951, near the reservation barracks. (Edwin H. Nelson)

Bottom left: The Minnehaha Falls right-of-way looking north; note the ornamental iron overhead poles between the tracks. The Milwaukee Road's Minnehaha depot, built about 1875, is visible between the trees in left center. (William J. Olsen)

1909

Minneapolis

The single track on 3rd Ave. No. from Washington Ave. N. to 2nd St. N. was abandoned.

Double track built on the newly constructed W. 7th St. bridge at Fort Snelling and connected with SPCR track on W. 7th St. to form the fourth interurban line between Minneapolis and St. Paul; this was completed June 21st.

A single track spur line (1.053 miles long) was built in Fort Snelling from a wye on the main line to the reservation barracks, completed June 21st. The agreement with the U.S. government for use of the main line right-of-way through the reservation provided that this spur line was to built and service provided over the spur at no fare.

St. Paul

Double track built on Hope St. from E. 7th St. to E. 4th St. and on E. 4th St. from Hope St. to Cypress St. Work was begun in 1908 and completed June 21, 1909.

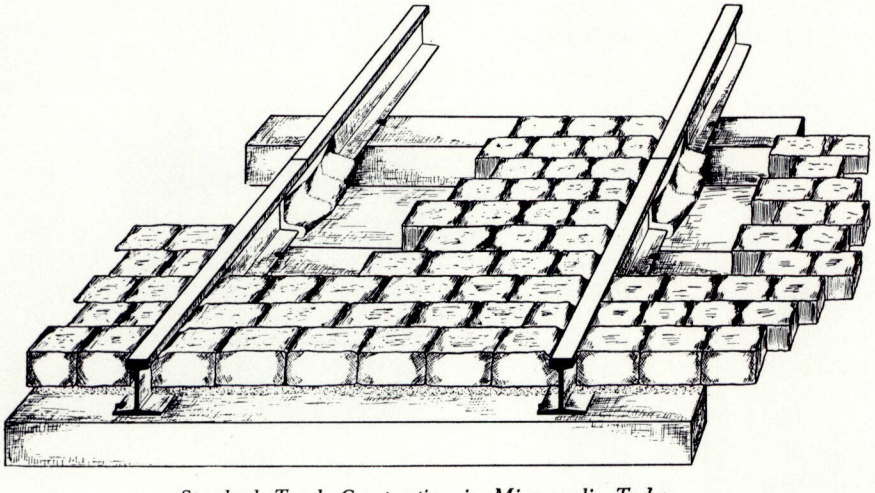
Track built on Randolph Ave. from Pascal St. to Snelling Ave., and on Snelling Ave. from Randolph to Grand Ave. Work was begun in 1908 and completed June 21, 1909.

Track on Earl St. from Burns Ave. to Indian Mounds Park was abandoned October 11th.

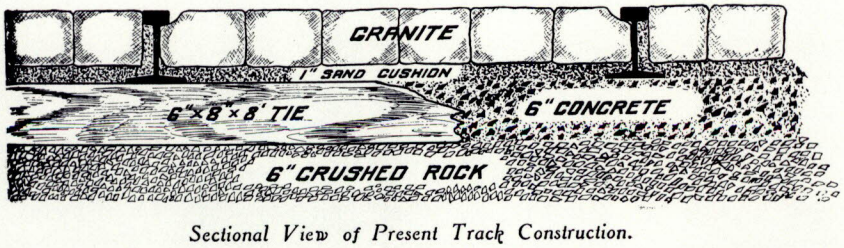
Construction Details

To accommodate the heavier double truck streetcars it had been found necessary to rebuild practically all of the existing lines with heavier rail. By 1909 only 5% of the track mileage remained with the same weight of rail it had in 1896, and that remaining 5% was all scheduled for rebuilding during 1909.

As it had been clearly demonstrated that the method of track construction utilized in rebuilding the Minneapolis business streets during 1896 was a failure, the following method employed in rebuilding all of this trackage was adopted as the company standard. After the old tracks were removed and the roadbed prepared, 6" of crushed rock was placed and thoroughly compacted with steam rollers. White oak ties, 6" x 8" x 8' were laid on 24" centers; 91 lb. T rails were then screw-spiked to the ties. The space between the ties was filled with 6" of concrete and firmly tamped. Welded (thermite) rail joints were used. The area between the rails of each track and between double tracks was paved with cut granite blocks laid on a 1" thick sand cushion and thoroughly grouted with liquid portland cement. The company reported that the cost of this construction was $12.00 per running foot of double track, or over $60,000.00 per mile, the most expensive type of track construction laid by any street railway in the U.S. The maximum grade on the system was one of 9.5% 300 ft. long, and the sharpest curve was of 45 ft. radius.



Standard Track Construction in Minneapolis Today.



Sectional View of Present Track Construction.

1910

Minneapolis

Second track added as follows: Fulton St. from Oak St. to Erie St.; on the High St. loop, and 1st Ave. N. from 6th St. to 7th St.

Track was abandoned on 4th Ave. So. from 3rd St. to 5th St.

St. Paul

Track built on St. Peter St. from 7th St. to 10th St.; track abandoned on 10th St. from St. Peter St. to Wabasha St. All of this work was completed July 31st.

1911

Minneapolis

The single track owned by the Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Co. on Nicollet Ave. from 50th St. to 54th St. (built in 1909) was acquired by MSR on March 1st. The trackage was electrified and a wye built at 54th St. and Nicollet Ave.

Single track built on 18th Ave. N.E. from Central Ave. N.E. to Johnson St. N.E. (.50 mile) and on Johnson St. from 18th Ave. to 28th Ave. N.E., completed November 8th.

Second track added on 8th Ave. So. from 38th St. to 46th St.

Second track added on the St. Louis Park line from 29th St. and Hennepin Ave. to the Lagoon Bridge at Lake Calhoun.

Double track built on Bryant Ave. So. from 46th St. to 50th St., completed November 22nd.

Double track built on Penn Ave. No. from 30th Ave. N. to 38th Ave. N. (now Dowling Ave.), completed November 24th.

Double track built on Bloomington Ave. So. from 34th St. to 38th St., completed December 10th.

St. Paul

According to one source, the trackage forming the 4th St.-Rosabel St.-3rd St.-Broadway-4th St. loop was built at this time; other data seem to indicate that it was built before this.

1912

Minneapolis

Double track built on 3rd St. N. from 1st Ave. N. to 2nd Ave. N. and on 2nd Ave. N. from 3rd St. to Washington Ave.

Double track built on Fremont Ave. N. from 36th Ave. to 42nd Ave. N., completed June 27th.

Double track built on 8th St. S.E. from Central Ave. to 10th Ave. S.E., on 10th Ave. to Johnson St., on Johnson St. to 18th Ave. N.E., and also on Johnson St. from 28th to 29th Ave. N.E. Single track on 18th Ave. N.E. from Central Ave. to Johnson St. was abandoned; double track on 8th St. S.E. from 10th Ave. S.E. to 14th Ave. S.E. (.311 mile) was abandoned. All of this work was completed July 31st.

Double track built on Plymouth Ave. N. from Penn Ave. to Sheridan Ave., completed September 8th.

The wye at 33rd Ave. S. and Lake St. was removed October 14th.

Double track built on Grand St. N.E. from Lowry Ave. to 29th Ave. N.E., completed November 3rd.

Double track built on Cedar Ave. S. from 34th St. to 35th St., on 35th St. from Cedar Ave. to 23rd Ave. S., on 23rd Ave. S. to 38th St., on 38th St. to 28th Ave. S., completed November 12th. Single track built on 28th Ave. S. from 38th St. to 42nd St., completed December 3rd.

Single track built on Minnehaha Ave. from Cedar Ave. to 25th St., and on 25th St. to 36th Ave. So., completed November 28th.

Second track added on the St. Louis Park line from the Lagoon Bridge to Excelsior Blvd.

St. Paul

Double track built on Rondo Ave. from Chatsworth St. to Griggs St., completed September 7th.

New track constructed at University Ave. and Prior Ave.; "Hamline-Union Depot" line cars were to pull onto the west leg of the wye on University Ave., back up, and take the layover at a point on University Ave. 175' east of Prior Ave.

1913

Minneapolis

A wye was built at 36th Ave. S. and Lake St., completed June 14th.

Single track built on Lyndale Ave. N. from 49th Ave. to 51st Ave. N., completed August 22nd.

Double track built on 1st St. N. from Hennepin Ave. to 1st Ave. N.

Second track added on 28th Ave. S. from 38th St. to 42nd St. Double track built on 28th Ave. S. from 42nd St. to 50th St. All of this work was completed September 27th.

Double track built on Xerxes Ave. So. from the Harriet Right-of-Way to 50th St., completed October 1st. Double track built on Grand St. N.E. from 29th to 30th Ave. N.E., completed October 4th.

St. Paul

Double track built on Arcade St. from E. 7th St. to Case Ave., on Case Ave. to Forest St., and on Forest St. from Case to Maryland Ave., completed November 10th.

1914

Minneapolis

Single track built on Cedar Ave. from 35th St. to 42nd St., completed June 3rd or 13th.

Single track built on W. 50th St. from Xerxes Ave. So. to Penn Ave. So.

Double track built on 20th Ave. N. from Washington Ave. N., across the Mississippi River Bridge to 13th Ave. N.E., on 13th Ave. N.E. to Washington St. N.E., on Washington St. to Broadway St. N.E., and on Broadway to Jackson St. N.E., completed June 27th.

Second track added on Minnehaha Ave. from Cedar Ave. to 25th St., and on 25th St. to 36th Ave. So.

Double track built on Fremont Ave. N. from 42nd Ave. to 44th Ave. N., completed June 28th.

Single track built on 36th Ave. So. from Lake St. to 34th St., on 34th St. to 42nd Ave. So., and on 42nd Ave. S. to 41st St. Passing sidings were located (1) on 34th St. between 36th and 37th Ave. So., and (2) on 42nd Ave. S. between 37th and 38th St. All of this work was completed September 25th.

Single track built on 50th St. from 28th Ave. So. to 34th Ave. So., completed October 25th.

Double track built on Dartmouth Ave. S.E. from Superior St. to 27th Ave. S.E., and on 27th Ave. S.E. to Franklin Ave., with a loop at Franklin Ave., completed October 28th.

Double track built on Franklin Ave. from 4th Ave. S. to 27th Ave. S., and on 11th St. S. from 4th Ave. S. to Hennepin Ave., completed October 31st.

Single track built on Crystal Lake Road (now Broadway) from Penn Ave. N. to the city limits connecting there with existing Robbinsdale line trackage. Track was abandoned on 32nd Ave. N. from this new connection to Penn Ave. N. Robbinsdale line trackage in Robbinsdale on Hubbard Ave. was abandoned and relocated on France Ave. N. and Crystal Lake Road (see map). All of this work was completed between September 3rd and October 31st.

The main campus of the University of Minnesota is located in southeast Minneapolis while the agricultural campus is in northwest St. Paul. All of the coal and building materials needed by the agricultural school had to be transported by costly horse-drawn wagons. A railroad connection was considered the solution to the problem. As a second thought, passenger service between the two campuses appeared attractive because it would save time and money for students who had classes on both campuses, it would save money for the university which would not have to duplicate courses for the separate colleges as was then being done, and a closer union could be developed between the two campuses. The legislature in 1913 granted an appropriation for the construction of an electric railway connecting with TCRT trackage to be used for passenger and freight service. University engineering students surveyed the route of the "Inter-Campus" line and the contractor finished the grading by the end of 1913. Track and overhead trolley wire were installed by MSR during 1914. This was essentially a single track line with a short length of double track on each portion. About 2½ miles of track was owned by the U. of M.:

1. on 15th Ave. S.E. from a connection with MSR's "Como-Harriet" line at 4th St. S.E. to a wye behind the mechanic arts building on the main campus.
2. from a connection with the "Como-Harriet" line at Como Ave. and Eustis St. on private right-of-way to the agricultural campus. A connection with the Minn. Transfer Ry. was located at the western end of this part of the line.

The completed line was opened November 4th. (Total cost: $82,199.)

St. Paul

Single track built on Burns Ave. from Earl St. to Clarence St., completed July 1st.

Double track built on Dale St. from Grand Ave. to Maryland Ave., completed October 23rd.

Single track built on Western Ave. from Como Ave. to Cook St., completed November 4th.

University Grove station on the Inter Campus line right-of-way in St. Paul, June 8, 1954. (Edwin H. Nelson)

1915

Minneapolis

A double track spur line with loops and storage tracks was built from the Fort Snelling right-of-way to the Motor Speedway, completed September 4th.

On the Robbinsdale line, cars were wying at Crystal Lake Road and Russell Ave. N. as of August 5th, indicating that second track may have been extended to this point and a wye installed.

St. Paul

Double track built on St. Clair Ave. from W. 7th St. to Oxford St., opened June 1st.

Double track built on E. 4th St. from Cypress St. to Terry St. and single track from Terry St. to Atlantic St. (the single track portion was approximately 1200' in length), opened November 15th.

The 1916 valuation of the Minneapolis St. Ry. yields a summary of track construction materials. Gravel, or crushed stone surfaced with gravel, was used for ballast. White Oak, Pine, Cedar, Tamarack, and treated ties were placed on 2' centers, except on concrete beam construction where 10' centers were designated. Tie rods were placed at 10' centers on tangent track, and 6' centers on curved track. Rail weights used on normal construction consisted of: 7' 91# T rail with cast welded joints; 5" 80# ASCE rail (in 60 ft. lengths) with either 22" continuous or cast welded joints; 7" 80# T, 7" 70# T, 8" 79# T, and 8" 74# T rail, with cast welded joints; 5¾" 60# T rail (in 30 ft. lengths) with 22" continuous joints; and a mixture of 4" 60# T, 38# T, and 40# T rail using continuous, angle bar or splice bar joints. Track with concrete beam construction had 5" 80# ASCE (60 ft. lengths), 7" 80# T, 7" 70# T, and 8" 74# T rail, all using cast welded joints. Curve track, for the most part, had only White Oak ties. Curves constructed with girder guard rail exclusively used 6" 92#, 6" 97#, 7" 108#, and 7" 110# rail. Certain curves were built with T outer rail and girder guard inner rail; 7" 91# T rail was used with 7" girder of both weights, and 5" 80#, 6" 60# and 8" 79# T rail was used with 6" girder guard rail of both weights.

1916

Minneapolis

Double track built on Western Ave. (now Glenwood Ave.) from Penn Ave. N. to Glenwood Park, completed June 24th. A wye was built at Aldrich Ave. and Western Ave. for storage of 7 cars at rush hours to service the workers of the Northwestern Knitting Works Co., completed November 7th.

An additional track was installed December 6th at Como Ave. and Eustis St. at the junction with the "Inter-Campus" line to form a wye.

Double track built on Franklin Ave. from 27th Ave. So. to the Mississippi River with a loop at Mississippi River Blvd., completed December 17th.

St. Paul

Single track built on Randolph Ave. from Snelling Ave. to Cleveland Ave.

A new wye was completed March 27th at Forest St. and Lake Como & Phalen Blvd.

1917

Minneapolis

The Motor Speedway spur line, loops and storage tracks were abandoned July 7th.

St. Paul

Track was built on: Maryland Ave. from Forest St. to Duluth Ave., opened October 5th, and St. Clair Ave. from Oxford St. to Fairview Ave., opened October 22nd.

1920

Minneapolis

Double track built on 2nd Ave. So. from Washington Ave. to 1st St., on 1st. from 2nd Ave. So. to 3rd Ave. So., on 3rd Ave. So. across the new 3rd Ave. bridge over the Mississippi River to Central Ave. S.E., and on Central Ave. to Hennepin Ave. E., completed October 18th.

Double track built on several downtown streets: 1st Ave. N. from Washington Ave. to 1st St.; 1st Ave. N. from 7th St. to 11th St. and Hawthorne Ave., and on 11th St. from Hawthorne Ave. to Hennepin Ave.; 5th Ave. So. from Washington Ave. to 5th St. and on 5th St. from 4th Ave. So. to 5th Ave. So.

Double track built on 2nd Ave. So. from 6th St. to 8th St., on 8th St. from 2nd Ave. So. to 1st Ave. N., to 7th St. No., and on 7th St. No. and Emerson Ave. N. to Broadway Ave., all completed December 1st.

Double track built on E. Hennepin Ave. from Johnson St. to 17th Ave. S.E., completed October 28th. A wye was located at 17th Ave. & E. Hennepin until depressed track under the railroad bridge on Stinson Blvd. could be completed. Double track built from 17th Ave. S.E. and E. Hennepin Ave. on Stinson Blvd. to Broadway St., completed December 27th.

The siding on the Harriet Right-of-Way between Xerxes Ave. and Upton Ave. was used for storing extra cars to meet the 10 p.m. evening traffic rush generated by the band concerts, pleasure boating and swimming at Lake Harriet. The siding was double end, but during the winter months the switch at the west end was removed.

1921

Minneapolis

Second track added on Cedar Ave. from 35th St. to 42nd St.; single track built on Cedar Ave. from 42nd St. to 50th St., all completed June 16th.

Double track built on E. Hennepin Ave. from 8th St. S.E. to Johnson St., completed August 3rd.

1922

Minneapolis

Double track built on the following streets and completed September 11th: Chicago Ave. So. from 46th St. to 48th St. and 38th Ave. N. from Penn Ave. N. to Thomas Ave. N.

St. Paul

Double track built on St. Clair Ave. from Fairview Ave. to Cleveland Ave., completed December 2nd.

Overhead Trolley Wire

The original trolley wire used was 2/0 grooved wire, also called "figure eight" wire. TCRT became dissatisfied with this type of wire and in 1922 began a yearly replacement program. 3/0 round wire was selected as the new standard. By 1931 about 80% of the 527 miles of trolley wire had been replaced so that only 100 miles of the old wire remained.

1923

Minneapolis

Double track built on Bloomington Ave. So. from 38th St. to 48th St., completed May 22nd.

Double track built on Morgan Ave. N. from Broadway Ave. to 19th Ave. N. and on 19th Ave. N. from Morgan to Upton Ave. N., completed January 3rd.

Double track built on 4th Ave. So. from 38th St. to 48th St., completed September 24th.

Double track built on Grand Ave. So. from 40th St. to 48th St., completed October 1st.

Double track built on Thomas Ave. N. from 38th Ave. to 42nd Ave. N., completed November 1st.

Single track built on Johnson St. N.E. from 29th Ave. to 33rd Ave. N.E., completed November 1st.

Double track built on 36th Ave. So. from 25th St. to Lake St. Second track added on 36th Ave. So. from Lake St. to 34th St. Single track built on 41st St. E. from 42nd Ave. to 46th Ave. So., and on 46th Ave. So. from 41st St. to 46th St. The siding on 34th St. was removed and the siding on 42nd Ave. So. was relocated to between 36th and 37th St. All of this work was completed November 19th.

Double track built on Washington St. N.E. from 17th Ave. to 22nd Ave. N.E., completed December 4th.

On the Robbinsdale line, a loop was constructed at Washburn Ave. N. and Broadway Ave.; apparently second track was also added to this point and the wye at Russell Ave. N. removed. This work was completed June 1st.

St. Paul

Second track added on Randolph Ave. from Snelling Ave. to Cleveland Ave., completed August 14th.

Double track built on Payne Ave. from Brainerd and Edgerton to Nebraska Ave., completed August 20th. On August 13th the wye at Brainerd and Edgerton was removed. Short line cars were to wye at Brainerd Ave. and Burr St.; long line cars wyed at Nebraska Ave., backing down to the end of track near Montana Ave. where the layover was taken.

Single track built on Maryland Ave. from Dale St. to Wheelock Parkway, completed November 15th.

A crossover was installed at Earl St. and Burns Ave. and a wye built at the east end of the line; shuttle service with double end cars was discontinued and regular cars ran through to the end of the line.

1924

Minneapolis

Double track built on the Franklin Ave. bridge over the Mississippi River to connect the trackage on Franklin Ave. with the trackage at 27th Ave. S.E. The loops at each end of the former lines were removed during the construction and replaced by wyes located at (1) 30th Ave. So. and Franklin Ave., and (2) 27th Ave. S.E. and Yale Ave. S.E. All of this work was completed December 13th.

Second track added as follows: Johnson St. N.E. from 29th to 33rd Ave. N.E.; 34th St. from 36th Ave. So. to 42nd Ave. So., and on 42nd Ave. So. from 34th St. to 41st St., and Nicollet Ave. from 50th St. to 54th St. (wyes were built at 48th St. and Diamond Lake Rd.), completed November 15th.

The curve at 2nd St. N.E. and Broadway St. was rebuilt to reduce the degree of curvature.

St. Paul

Track built on Cleveland Ave. from Randolph Ave. to Ford Parkway, and on Ford Pkwy. to the Ford Plant, completed January 21st.

Track built on Pascal St. from Como Ave. to Lake Como-Phalen Blvd. (Arlington Ave.), completed November 10th.

Temporary double track built on Delos St. between Wabasha St. and Robert St., used from August 19, 1924, until August 27, 1926, while the new Robert St. bridge over the Mississippi River was under construction.

1925

Minneapolis

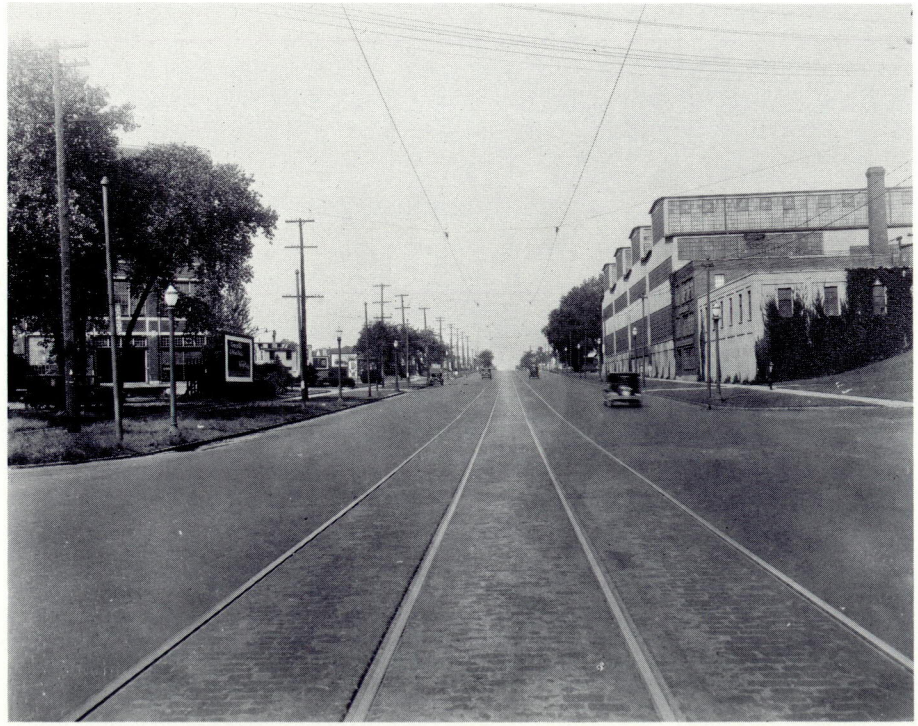
Single track built on Cedar Ave. S. from 50th St. to 52nd St., and on 52nd St. from Cedar Ave. to Bloomington Ave.

Single track built on France Ave. So. from the Harriet Right-of-Way at 44th St. to 50th St., completed October 9th.

Single track built on 45th Ave. N. from Lyndale Ave. N. to Bryant Ave. N., and on Bryant Ave. to 52nd Ave. N.; a siding was located on 45th Ave. N. between Aldrich Ave. and Bryant Ave. Track on Lyndale Ave. N. from 45th Ave. to 51st Ave. N. was abandoned. This work was completed November 11th.

Track construction on Lyndale Ave. N., Minneapolis, in 1927; stone ballast, oak ties, screw spikes, 7" 93 lb. T rail, and granite paving blocks laid on a concrete foundation. (A. D. Roth; Robert Bowes collection)

Marquette Ave., Minneapolis, looking south across the 11th St. intersection. (A. D. Roth; Robert Bowes collection)



Left: University Ave. at Eustis St., St. Paul, looking west; 7" 91 lb. T rail with granite paving laid in 1914. (A. D. Roth; Robert Bowes collection)

Above: Crane car 50 in a company gravel pit showing the extensive excavation that resulted from construction needs. Note the height of the trolley wire necessary for proper crane boom elevation. (Ken Fletcher collection)

1926

Minneapolis

Double track built on 44th Ave. N. from Fremont Ave. to Oliver Ave. N., completed January 15th.

Double track built on 42nd St. from Cedar Ave. So. to Hiawatha Ave. So., on Hiawatha Ave. to 34th Ave. S., and on 34th Ave. S. to 54th St. Single track on 50th St. between 28th Ave. S. and 34th Ave. S. was abandoned. The track work at the intersection of 28th Ave. So. and 42nd St. was rearranged (see map). All of this work was completed November 28th.

1927

Minneapolis

Double track built on 50th St. W. from Bryant Ave. S. to Penn Ave. S.; single track built on Penn Ave. from 50th St. to 54th St., all completed October 16th.

Double track built on 46th Ave. S. from 46th St. to and over the newly built Ford Bridge over the Mississippi River, and on Ford Pkwy. in St. Paul to a connection with SPCR trackage at the Ford Plant loop, completed December 2nd.

Second track added on: Laurel Ave. from Colfax Ave. to Oliver Ave.; 50th St. from Xerxes Ave. So. to Penn Ave. So.; 41st St. from 42nd Ave. So. to 46th Ave. So., and on 46th Ave. So. from 41st to 46th St., completed December 2nd; Lyndale Ave. N., from 42nd Ave. N. and Washington Ave., to 45th Ave. N., on 45th Ave. to Bryant Ave., completed September 8th; later in the year: on Bryant Ave. from 45th Ave. to 52nd Ave. N.

St. Paul

Double track built on Lafayette Rd. from 7th St. to 10th St. Track on 10th St. from Lafayette Rd. to Mississippi St. was abandoned. This work was completed August 1st.

Double track built on: Arlington Ave. from Pascal St. to Hamline Ave., and on Hamline Ave. from Pascal St. to Hoyt Ave.; Snelling Ave. from Randolph Ave. to Otto St. (Highland Parkway), all of this work completed August 7th.

The single track on 8th St. between Robert St. and Wabasha St. was removed; single track built on Robert St. from 8th St. to 9th St. and on 9th St. from Robert St. to Wabasha St. Records do not indicate when this work was actually done; a map dated 1927, not of TCRT origin, provides the first indication of this relocation.

A new wye was built November 30th on Prior Ave. at Charles St.

1928

Minneapolis

Double track built on Bloomington Ave. So. from 48th St. to 52nd St. Track on Cedar Ave. from 50th St. to 52nd St. and on 52nd St. from Cedar to Bloomington Ave. was abandoned. This work was completed September 13th.

Double track built on Chicago Ave. So. from 48th St. to 54th St., completed January 22nd.

Double track built on Nicollet Ave. So. from 54th St. to 58th St., completed August 30th.

Single track built on Laurel Ave. from Oliver Ave. to Upton Ave., with a siding on Laurel Ave. between Knox Ave. and Morgan Ave., completed November 15th.

St. Paul

The single track along the side of Concord St. from Linden St. to Faulkner Ave. in the village of Inver Grove was acquired from the abandoned St. Paul Southern Electric Ry. on October 31st.

1929

Minneapolis

Double track built on 28th Ave. So. from 50th St. to 56th St., completed November 30th.

Second track added on France Ave. So. from 44th St. to 50th St., completed July 20th; single track built on France Ave. from 50th St. to 54th St., completed September 16th.

On the Robbinsdale line, second track had been added from Broadway and Washburn to Ewing Ave. N. and Oakdale Ave. at an unknown date. The first reference to this work is a company bulletin dated December 6th.

1930

Minneapolis

Double track built on 42nd Ave. So. from Minnehaha Ave. to 54th St., and on 54th St. from 42nd Ave. to a connection with existing trackage on the Fort Snelling right-of-way. Track on the Fort Snelling right-of-way between the Minnehaha Falls loop at 51st St. and the new connection at 54th St. was abandoned. This work was completed November 19th.

St. Paul

Single track built on Maryland Ave. from Duluth Ave. to Kennard St., completed June 14th.

1931

Minneapolis

Double track built on Bryant Ave. So. from 50th St. to 56th St., completed October 30th.

Double track built on Washington St. N.E. from 22nd Ave. to 27th Ave. N.E., completed November 26th.

Double track built on 1st St. between Hennepin Ave. and Marquette Ave. (1st Ave. So.). Track on High St. from Hennepin Ave. to Marquette Ave., and on Marquette Ave. from High St. to 1st St. was abandoned. This work was completed November 5th.

Construction Details

The heaviest rail in use at this time was 102 lbs. per yard. Subsequent track construction and reconstruction projects used rail of this weight and up to 114 lbs. per yard, the latter being the heaviest weight rail ever used on the system.

Above: Hennepin and Washington Avenues, Minneapolis, looking south on Hennepin.

Below: Grand Ave. and 33rd St., Minneapolis, a typical residential scene. 6" 100 lb. T rail with brick paving was placed in 1924.

Above: 5th St., St. Paul, looking east across the Robert St. intersection; rail was relaid in 1912 and 1914.

Below: Robert St. bridge over the Mississippi River, St. Paul, looking north. The bridge was completed in 1926 with 7" 93 lb. T rail and granite paving.

(All photographs A. D. Roth; Robert Bowes collection)

Most of the urban lines utilized the company-designed cast iron poles with span wire construction to support the overhead trolley wire. Wooden poles were used on the suburban lines and some portions of certain urban lines. The ornamental iron center poles with side brackets remained only on the right-of-way through Como Park, St. Paul, and on the right-of-way in Minnehaha Park, Minneapolis. Several experiments were made with concrete poles, but they never attained widespread use, the only installation retained being on W. 50th St. between Xerxes Ave. and Upton Ave.

1933

Minneapolis

Double track built on Bloomington Ave. from 52nd St. to 54th St., completed October 12th. The wye at 52nd St. and Bloomington Ave. was removed. This was to be the last new track extension built in either city until after World War II.

Track on Cedar Ave. So. from 42nd St. to 50th St. was abandoned September 17th.

St. Paul

The former St. Paul Southern Electric Ry. track alongside Concord St. between Linden St. and Faulkner Ave. was abandoned October 13th. The last car left Faulkner Ave. at 11:32 P.M.

1934

Minneapolis

The wye at 40th Ave. N.E. and Central Ave. N.E. was moved to 40th Ave. N.E. and Van Buren Ave., completed June 30th.

The wye at 50th St. and France Ave. So. was moved to 51st St. and France Ave.

1935

St. Paul

A wye was built at Oakley Ave. and Prior Ave., completed June 17th.

1938

Minneapolis

The wyes at the following locations were removed: 40th St. and Grand Ave. (August 1st); and 37th St. and Minnehaha Ave. (site of the original Ball Park) (August 5th).

Minnesota Highway Department highway construction proposals caused applications to be filed during 1937 for abandonment of the St. Louis Park and Kenwood lines, but as portions of the replacement bus lines were to be operated over streets controlled by the Minneapolis Park Board, approval had to be sought from them which delayed the actual abandonments until August 27th, 1938. On that date the following trackage was abandoned: "St. Louis Park" line: on 29th St. (now Lagoon Ave.) and W. Lake St. from Hennepin Ave. to Brownlow Ave.; and "Kenwood" line: on Douglas Ave. from Hennepin Ave. to Penn Ave. and on Penn Ave. to 21st St.

St. Paul

The "Merriam Park" line was abandoned August 27th: on Prior Ave. from Marshall Ave. to University Ave.

The "Jackson St." line was abandoned October 29th: on Jackson St. from 5th St. to Maryland Ave.

The "South Robert St." line was also abandoned October 29th: on Robert St. and State St. from Concord St. to Annapolis St.

1939

Minneapolis

The Lake Harriet loop was removed from service January 9th. The switches and crossing on the main line were removed but the loop itself was not removed until 1950.

The "Bryn Mawr" line was abandoned June 29th: from 12th St. and Hennepin Ave. on 12th St., Hawthorne Ave., Aldrich Ave., and Laurel Ave. to Upton Ave.

St. Paul

The "Hope St." line was abandoned: on Hope St. and E. 4th St. from E. 7th St. to Atlantic Ave.

Track built on 10th St. from St. Peter St. to Wabasha St.; track on St. Peter St. from 10th St. to 7th St. was abandoned. This work was completed December 2nd.

1940

Minneapolis

The "6th Ave. No." line was abandoned May 25th: on 6th Ave. No. from the intersection of 5th St. N. and 5th Ave. N. to Russell Ave. N.

The "Franklin-11th St." line was abandoned November 29th: on Franklin Ave. from Cedar Ave. to 27th Ave. S.E. and Yale Ave. S.E., and on 11th St. from 4th Ave. So. to Hennepin Ave.

1941

St. Paul

The "Western Ave." line was abandoned August 23rd: on Western Ave. from Como Ave. to Cook Ave.

1942

Minneapolis

Second track added on the Robbinsdale line, from Ewing Ave. and Oakdale Ave. to France Ave. and W. Broadway, completed June 9th.

1943

Minneapolis

A single track extension, with passing siding, of the wye at 30th Ave. N.E. and Grand St. N.E. was built on 30th Ave. to Marshall St. N.E. MSR cars backed down this track to connect with cars of the Mpls. Anoka & Cuyuna Range R.R. serving the Northern Ordnance Inc. plant. The siding was for car storage. This service began November 22nd.

1946

Minneapolis

The wye at 3rd Ave. N. and 7th St. N. adjacent to the Electric Short Line Terminal Co. depot was removed September 25th.

1947

Minneapolis

The very last track extensions to be built (in either city) were the following: Second track added on France Ave. So. from 50th St. to 51st St. and double track built on Nicollet Ave. So. from 58th St. to 62nd St., completed November 15th.

Track abandoned on Lyndale Ave. N. from 42nd Ave. N. and Washington Ave. N. to 45th Ave. N., on 45th Ave. to Bryant Ave., and on Bryant Ave. to 52nd Ave. N., all on August 2nd.

A wye had previously been built at 36th Ave. N. and France Ave. on the Robbinsdale line for short line turnback purposes. However on October 11th the track in Robbinsdale from 36th and France to 42nd Ave. N. and Broadway was abandoned.

Track construction on Nicollet Ave., Minneapolis, in October, 1947, looking north from 59th St. Portable track can be seen on the left with one of the rail grinders (39 or 40) on the southbound track. (Robert Schumacher)

1948

Minneapolis

The Northwest Terminal line was abandoned January 10th: on E. Hennepin Ave. from 8th St. S.E. to Stinson Boulevard and on Stinson Blvd. to Broadway.

The remainder of the Robbinsdale line from Broadway and Penn Ave. to 36th Ave. N. and France Ave. was abandoned July 10th.

St. Paul

The "Rondo-Stryker" line was abandoned January 24th involving the following trackage: on Rondo Ave., Rice St., and 10th St. from Wabasha St. to Griggs, and on Stryker Ave. from Winifred St. to Annapolis St.

Track abandoned October 30th on Maryland Ave. from Forest St. to Kennard St.

Track on Arcade St., Case Ave. and Forest St. from E. 7th St. to Maryland Ave. was removed from service April 5th because of bridge construction on Arcade St. On October 30th it was decided to abandon the trackage instead of laying track on the new bridge.

A temporary wye was installed at Cypress St. and Hudson Road due to bridge construction on Earl St. The trackage on Plum St. from Maria Ave. to Hudson Road was abandoned; new track was built on Hudson Road from Maria Ave. to Plum St. All of the foregoing work was completed July 20th. The temporary wye was removed and the line re-opened east of Cypress St. on March 1, 1949.

1950

Minneapolis

The "Broadway" line was abandoned April 16th; however, the only trackage involved was: on Broadway from Jackson to Monroe, on 13th Ave. N.E. from Washington St. N.E. to Washington Ave. N., and on 19th Ave. N. (now Golden Valley Rd.) and Morgan Ave. N. from Broadway to Upton Ave.

The "28th Ave. So." line was abandoned August 19th; trackage involved was on: Franklin Ave. from Bloomington Ave. to Cedar Ave., on Cedar Ave. from Minnehaha Ave. to Lake St., on 35th St. from Cedar Ave. to 23rd Ave. So., on 23rd Ave. So. from 35th St. to 38th St., on 38th St. from 23rd Ave. to 28th Ave., and on 28th Ave. So. from 38th St. to 56th St. The track arrangement in the intersection of 28th Ave. So. and 42nd St. was rebuilt to connect the two sections on 42nd St. so cars could run through on 42nd St. from Cedar Ave. to Hiawatha and 34th Ave. So.

1951

Minneapolis

A wye was built at 37th Ave. N.E. and Central Ave. N.E.; and that portion of the "Columbia Heights" line north of this point was abandoned July 28th: on Central Ave. N.E. from 37th Ave. to 40th Ave. N.E., and on 40th Ave. from Central to 5th St. N.E.

1952

Minneapolis

The following trackage was abandoned on the dates indicated:

Fremont Ave. N. from 36th Ave. N. to 44th Ave. N., and on 44th Ave. N. to Oliver Ave., May 17th.

Fort Snelling spur line, August 1st.

France Ave. So. from 44th St. to 54th St., August 11th.

15th Ave. So. from Franklin Ave. to 7th St., 7th St. from 15th Ave. So. to 10th Ave. So., 10th Ave. So. from 7th St. to 6th St., 6th St. from 10th Ave. So. to 8th Ave. So., 8th Ave. So. from 6th St. to 4th St., and 4th St. from 8th Ave. So. to 2nd Ave. So., August 23rd.

On 2nd Ave. So. from 6th St. to 8th St., and on 8th St. from 2nd Ave. So. to 1st Ave. N., the southbound and westbound tracks only, September 13th.

On 2nd Ave. So. from Washington Ave. to 1st St., 1st St. from 2nd Ave. So. to 3rd Ave. So., 3rd Ave. So. and Central Ave. from 1st St. over the bridge to E. Hennepin Ave., southbound track only, was removed from regular service September 24th. Pullouts on the "Plymouth-E. 25th St." line used this track until May 16, 1953, when both southbound and northbound tracks were completely abandoned.

Grand Ave. So. from Lake St. to 48th St., October 18th.

St. Paul

All of the St. Paul local lines were abandoned during 1952, leaving only the three interurban lines in operation ("Como-Harriet", "Interurban", and "Selby-Lake" lines):

Dale St. from Grand Ave. to Maryland Ave., and on Maryland from Dale to Wheelock Parkway, May 3rd.

Maria Ave. from E. 7th St. to Hudson Road, Hudson Road from Maria to Earl St., Earl St. from Hudson Rd. to Burns Ave., and on Burns Ave. from Earl St. to English St., May 17th.

Randolph Ave. from W. 7th St. to Cleveland Ave., Cleveland from Randolph to Ford Pkwy., and Ford Pkwy. from Cleveland to the Ford Plant loop, May 17th.

Rice St. from Como Ave. to Ivy Ave. (South St.), May 17th.

Robert St. from 4th St. to Concord St., and on Concord St. from Robert St. to the South St. Paul-Inver Grove city limits at Linden St., May 17th.

West 7th St. from St. Clair Ave. to the Fort Snelling wye, May 17th.

East 7th St. from Lafayette Rd. to the Stillwater right-of-way, on the right-of-way to the wye at Hyacinth Ave. (Hazel Park), May 17th.

On Lafayette, Collins, Burr, Minnehaha, Payne, Greenbrier, Maryland, and Forest from E. 7th St. to Phalen Park, September 6th.

St. Clair Ave. from W. 7th St. to Cleveland, and on E. 7th St. and W. 7th St. from St. Clair to Lafayette, except for the portion between Ramsey St. and Wabasha St., September 6th.

Snelling Ave. from Highland Parkway to Como Ave., Pascal St. from Como to Arlington, Arlington Ave. from Pascal to Hamline, and on Hamline Ave. from Arlington to Hoyt, September 6th.

Wabasha St. from 4th St. to Winifred St., Ohio St. from Winifred to George St., George St. from Ohio to Smith Ave., and Smith Ave. from George St. to Annapolis St., November 1st.

Thomas Ave. from Como Ave. to Hamline Ave., Hamline from Thomas to Minnehaha, Minnehaha Ave. from Hamline to Prior, and Prior Ave. from Minnehaha to University Ave., November 1st.

On Ramsey St., Oakland Ave. and Grand Ave. from W. 7th St. to Cretin Ave., and on West 7th St. from Ramsey St. to Wabasha St., November 1st.

On Broadway, Mississippi, York, Westminster, Case, Arkwright, Brainerd, Ivy and Payne from 5th St. to Nebraska Ave., November 1st.

A brief recapitulation of the abandonments may place the situation in sharper perspective:

May 3rd: "Dale St."

May 17th: "Rice-South St. Paul", "Ft. Snelling-Maria-47 Ave.", and "Randolph-Hazel Park".

September 6th: "Snelling Ave." and "St. Clair-Payne-Phalen".

November 1st: "Hamline-Cherokee" and "Grand-Mississippi".

1953

Minneapolis

The Minneapolis local lines were substantially abandoned:

Bloomington Ave. from Franklin Ave. to 54th St., February 21st.

Central Ave. N.E. from E. Hennepin Ave. to 37th Ave. N.E., February 21st.

54th St. from 47th Ave. So. to the Fort Snelling right-of-way, and on the right-of-way to the Ft. Snelling wye, April 14th.

Oak St. S.E. from Beacon St. to Fulton St., Fulton from Oak to Erie St., Erie from Fulton to Dartmouth Ave., on Dartmouth from Erie to 27th Ave. S.E., and on 27th Ave. S.E. from Dartmouth to Yale Ave., April 25th.

Franklin Ave. from Bloomington Ave. to 4th Ave. So., Cedar Ave. from Lake St. to 42nd St., 42nd St. from Cedar Ave. to Hiawatha Ave. and 34th Ave. So., and on 34th Ave. So. from 42nd and Hiawatha to 54th St., April 18th.

Washington Ave. N. from Hennepin Ave. to 42nd Ave. N., April 18th, except: cars pulling out of and into North Side Station at 26th Ave. N. used the trackage between there and Hennepin until July 11th and cars on the "Plymouth-E. 25th St." line used the trackage between Hennepin and Plymouth until November 28th.

Chicago Ave. from 8th Ave. So. to 54th St., 8th Ave. So. from Chicago to 6th St., 6th St. from 8th Ave. So. to 4th Ave. So., 2nd Ave. So. from 6th St. to 8th St., 8th St. from 2nd Ave. So. to 1st Ave. N. (eastbound and northbound tracks only on the latter two streets), July 11th. (*) From 8th St. N. and 1st Ave. No., on 8th St. N., 2nd Ave. N., 7th St. N., and Emerson Ave. N. to 33rd Ave. N., 33rd Ave. to Fremont Ave. N., and on Fremont Ave. N. to 36th Ave. N., July 11th. (*)

Broadway Ave. from Washington Ave. N. to Penn Ave. N., Penn Ave. N. from Broadway to 38th Ave. N., 38th Ave. N. to Thomas Ave. N., and on Thomas Ave. from 38th to 42nd Ave. N., July 11th. (*) Because of franchise considerations, one car per week was operated over this "Chicago-Penn-Fremont" line trackage on Thursday nights until November 27th.

Lake St. from Hennepin Ave. to the Mississippi River bridge, July 11th, except: portions between Bryant Ave. and 36th Ave. So. were used by cars pulling into and out of Nicollet and Lake St. Stations until November 28th, and because of franchise considerations one car per week was operated on Thursday nights between Hennepin Ave. and 36th Ave. So. until November 28th.

5th St. from 5th Ave. No. to 5th Ave. So., 5th Ave. So. from 5th St. to Washington Ave., Washington Ave. from 5th Ave. So. to University Ave. S.E., and on University Ave. S.E. to the Emerald St. S.E. wye, November 28th, except that this trackage was used by cars going to and from the Snelling Shops until June, 1954.

Lyndale Ave. from Hennepin Ave. to Lake St., Bryant Ave. from Lake St. to 56th St., 50th St. from Bryant Ave. to Penn Ave. So., and on Penn Ave. from 50th St. to 54th St., November 28th.

8th St. S.E. from Hennepin Ave. to 10th Ave. S.E., 10th Ave. S.E. and Johnson St. S.E. and N.E. from 8th St. S.E. to 33rd Ave. N.E., November 28th.

From Washington Ave. and Riverside Ave., on Riverside Ave., 27th Ave. So., and Minnehaha Ave. to the Minnehaha Falls loop at 51st St.; 42nd Ave. So. from Minnehaha Ave. to 54th St., and on 54th St. to the 47th Ave. So. wye, November 28th.

Plymouth Ave. N. from Washington Ave. to Sheridan Ave., November 28th.

Cedar Ave. from Washington Ave. to Minnehaha Ave., Minnehaha from Cedar to E. 25th St., E. 25th St. from Minnehaha to 36th Ave. So., on 36th Ave. So. to 34th St., to 42nd Ave. So., 42nd Ave. So. to 41st St., 41st St. to 46th Ave. So., and on 46th Ave. So., over the Ford Bridge to the Ford Plant loop, November 28th.

After the November 28th abandonments the only downtown trackage in regular use was that on Hennepin Ave., Marquette Ave., and on 6th St. from 4th Ave. So. to 1st Ave. No.; Washington Ave. trackage was used only for cars going to and from the Snelling Shops.

A brief recapitulation of the abandonments is again provided for clarity:

February 21st: "Bloomington-Columbia Heights".

April 18th: "34th Ave. So." and "N. Washington" lines.

April 14th and 25th: portions of the "Fort Snelling" line and "Oak St." line.

July 10th: "Chicago-Penn-Fremont" (one car per week until November 28th).

July 11th: "Selby-Lake" (one car per week until November 28th).

November 28th: "Interurban", "Minnehaha Falls-Ft. Snelling" (remainder), "Plymouth-East 25th St.", and "Bryant-Johnson".

St. Paul

The three interurban lines were abandoned as follows:

From the Mississippi River bridge on Marshall Ave., Fairview Ave., Selby Ave., Kellogg Blvd. (3rd St.), and 4th St. to Broadway, July 11th.

From the Como Ave. and Eustis St. wye, on Como, Chatsworth, Front, Como, Rice, University, to University and Wabasha St., July 11th. Trackage from Eustis St. to the State Fairgrounds on Como Ave. was used during the Minnesota State Fair, August 29th through September 7th.

University Ave. from Emerald St. S.E. to Rice St., to Wabasha St., on Wabasha to 5th St., on 5th St. to Robert St., Robert St. to 9th St., and 9th St. to Wabasha St., October 31st. This was the last streetcar service in St. Paul. Trackage on University Ave. from Emerald St. to the Snelling Shops was used for cars going to and from the shops until June, 1954.

Recapitulating these abandonments and tying them in with Minneapolis abandonments:

July 11th: "Selby-Lake" (entire line), "Como-Harriet" (St. Paul portion only; Minneapolis portion was wyeing at Como Ave. and Eustis St.).

October 31st: "Interurban" line (St. Paul portion).

November 28th: "Interurban" line (Minneapolis portion).

1954

Minneapolis

The final abandonments are summarized as follows:

March 6th: "Glenwood-4th Ave. So." line.

March 27th: "Nicollet-2nd St. N.E." and "Nicollet-Monroe" lines.

June 18th and 19th: "Como-Harriet", "Oak-Harriet" and "Inter-Campus" lines, the last streetcar service in Minneapolis.

Trackage abandoned was as follows:

4th Ave. So. from 6th St. to 48th St., 6th St. from 4th Ave. So. to 1st Ave. N., 1st Ave. N. from 6th St. to 7th St., and Glenwood Ave. from 7th St. N. to Glenwood Park, March 6th.

Nicollet Ave. from Grant St. to 62nd St., Grant St. from Nicollet Ave. to Marquette Ave., Marquette Ave. from Grant St. to 1st St., 1st St. from Marquette to Hennepin; 2nd St. N.E. from Hennepin to Lowry, Lowry Ave. N.E. from 2nd St. to Grand St. N.E., Grand St. from Lowry to 30th Ave. N.E.; E. Hennepin from 4th St. S.E. to Central Ave., Central to Monroe, Monroe St. from Central Ave. to Broadway, Broadway from Monroe to Washington St. N.E., Washington St. from Broadway to 27th Ave. N.E., all March 27th.

"Inter-Campus" line trackage owned by the University of Minnesota: 15th Ave. S.E. from 4th St. S.E. to the main campus loop; and from Como Ave. and Eustis St. on private right-of-way to the agricultural campus, all June 18th. (At the request of MSR, the U. of M. switch car was last used during May, 1953, due to the deteriorating condition of the track.)

Hennepin Ave. from 4th St. S.E. to 31st St., 31st St. from Hennepin to the Harriet Right-of-Way, the right-of-way from 31st St. to the Brookside loop; Xerxes Ave. from the Harriet right-of-way to 50th St., 50th St. from Xerxes to Penn Ave. So.; 4th St. S.E. from Hennepin to 15th Ave. S.E., 15th Ave. S.E. from 4th St. to Como Ave., Como Ave. from 15th Ave. to the Eustis St. wye; 4th St. S.E. from 15th Ave. S.E. to Oak St. S.E., and Oak St. from 4th St. S.E. to the Beacon St. wye, all June 19th. (The last car was #1166, pulling into the East Side Station at 1:34 A.M. on the 19th.)

The very last streetcars to run on Minneapolis and St. Paul streets after the final abandonments were: #1756 left East Side Station for the Snelling Shops on the Tuesday after abandonment, and a few nights later #1767 made a midnight run from the Snelling Shops on University Ave. to Emerald St. and return on an electrical errand.

Looking north on Concord St., South St. Paul, toward Grand Ave. (Werner Photo Studios; Ken Fletcher collection)

MINNEAPOLIS, LYNDALE & MINNETONKA RY.

"The Motor Line"

The Lyndale Railway Co. was incorporated in June, 1878, by Col. Wm. McCrory, Wm. B. Hawkes, (both of Columbus, Ohio), and Samuel E. Neiler, Robert S. Innes, and Judson Cross, (all of Minneapolis). (Lyndale was the name of the large farm near Lakes Calhoun and Harriet.) Col. McCrory was the President and General Manager of the newly formed company. Negotiations with the Minneapolis St. Ry. resulted in an agreement dated October 24, 1878, whereby MSR leased to The Lyndale Ry. the right to operate steam powered trains on 1st St. from Nicollet Ave. to 1st Ave. So. (now Marquette Ave.), 1st Ave. So. from 1st St. to 13th St., 13th St. from 1st Ave. So. to Nicollet Ave., and on Nicollet Ave. from 13th St. to the then city limits at 26th St. In 1879 the name of the company was changed to the Minneapolis, Lyndale & Lake Calhoun Railway.

During 1879, a single track, 3'0" gauge line, 4.5 miles long, using 35 lb. iron T rail, was built on: 1st St. from Nicollet Ave. (Bridge Square) to 1st Ave. So. (with a short siding on 1st St. to permit the locomotive to run around the trailer cars), 1st Ave. So. to 13th St., 13th St. to Nicollet Ave., Nicollet Ave. to 31st St., 31st St. west past Hennepin Ave. and thence on a curving right-of-way along the east shore of Lake Calhoun to a small waiting station at 34th St. (with a short siding to allow the locomotive to run around the trailer cars). A passing siding was located at 24th St. and Nicollet Ave. Shops were established at Lake Calhoun as part of a tentative plan to erect an office building there. (Such offices as the company had during independent operation were located over the Northwestern National Bank at 1st Ave. So. and Washington Ave.)

Two steam motors, painted black with gold trim, were built by the Baldwin Locomotive Works in May, 1879: #1 (builder's number 4638) and #2 (builder's number 4641). Both were of the 0-4-2 type with 37" diameter driving wheels and 10" x 12" cylinders. Two closed passenger trailers also numbered #1 and #2, were acquired second-hand from an eastern railroad; painted yellow, each seated 60 persons on longitudinal seats, had a coal stove in the center of the car, kerosene lamps at each end, kerosene chandeliers along the ceiling, and were fitted with link and pin couplers.

Regular operations began May 19, 1879, with the first timetable indicating that trains left Bridge Square for Lake Calhoun every 45 minutes from 6:45 A.M. to 10:45 P.M. Trains left Lake Calhoun simultaneously so the two trains met at the siding located at 24th St. and Nicollet Ave. Running time was 35 minutes. Flag stops were made at all street intersections. No wyes or turntables were provided so the steam motors ran forward to Minneapolis and backward to Lake Calhoun. Considerable difficulty was experienced on the Nicollet Ave. hill between 18th St. and 22nd St.; if a train had to stop on the grade, it was necessary to back down to the bottom and make a fresh start. Each steam motor had one engineer-fireman and each trailer car had one conductor-brakeman.

In 1880 the single track was extended from Lake Calhoun to Lake Harriet. Several open passenger trailers were purchased second-hand from New York and Philadelphia at this time. One source states that two new steam motors, #3 and #4, were acquired in 1880 but this is not in agreement with the builder's records.

The company had in 1879 obtained the right to construct a canal connecting Lake Calhoun with Lake Harriet. This was never undertaken as it was discovered that Lake Harriet was several feet higher above sea level than Lake Calhoun. The rights did include permission to build and operate boats for carrying freight and passengers on the two lakes. For a short time, dates unknown, a double deck, side paddle wheel, passenger steamer, the "Hattie", was operated on Lake Calhoun. It made regular trips around the lake but being neither handsome, swift, nor profitable, the service was soon discontinued. One summer evening in 1892 the boat, from which the machinery had been removed, was towed out into the lake and set afire; several thousand persons witnessed the spectacle of a ship "burning at sea".

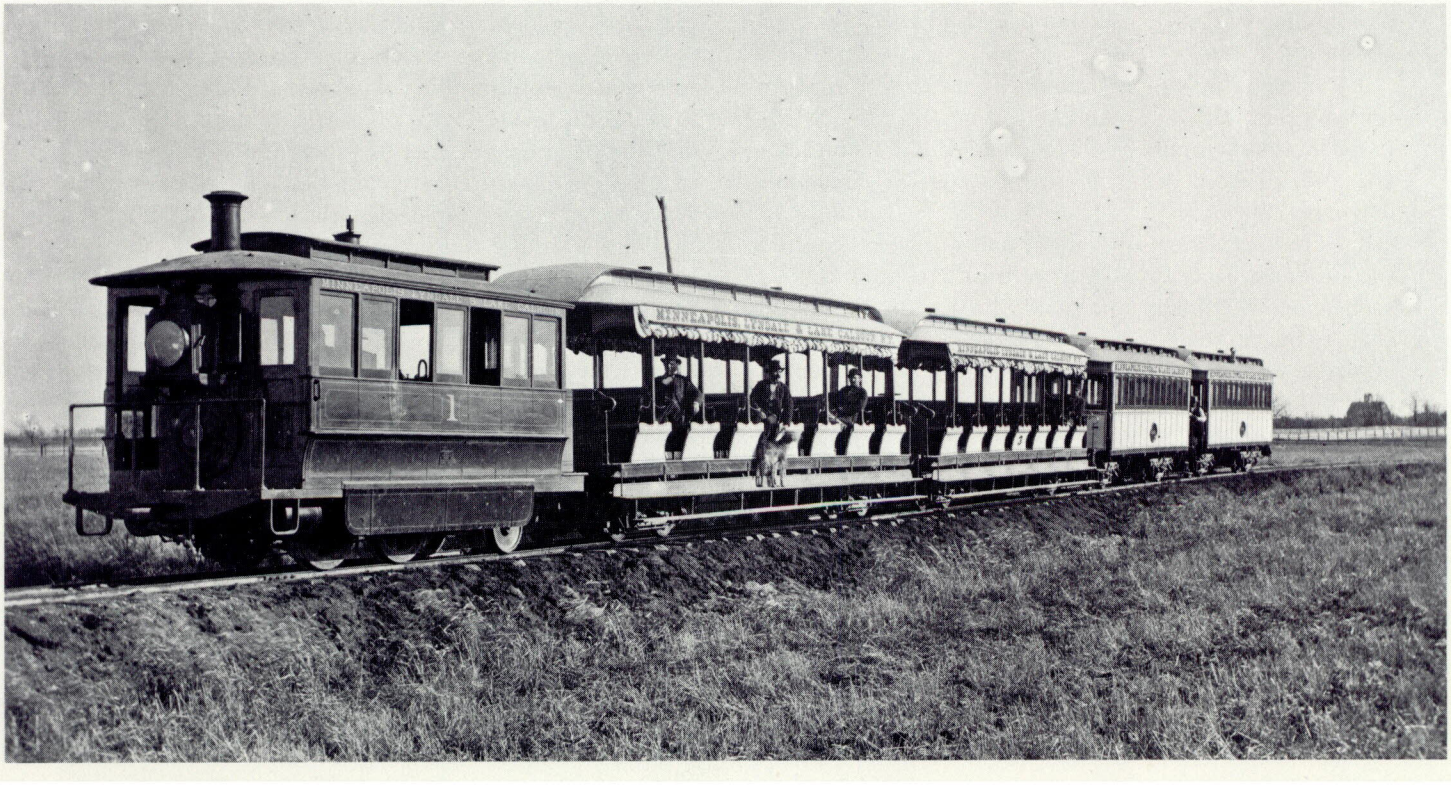
Col. McCrory next turned his attention to the resort and tourist activity at Lake Minnetonka, 15 miles west of Minneapolis. Surrounded by hardwood forests, the lake saw the first pioneer settlers arrive in the early 1850's. It was not long before the spectacular beauty was advertised far and wide; hunting and fishing were promoted actively as well as the health-giving properties of the fresh lake air. The first steamboat began providing transportation on the lake in 1861. With the completion of the railroad to Wayzata in 1867 the era of steamboat transportation on a large scale around the lake began. From 1867 through 1879 twelve small resort hotels (capacity 25 to 80 guests) became established on the lake. The first large, plush hotels, featuring spacious dining halls, open verandas, attractively landscaped grounds, and described as rest havens and tourist paradises, were erected in 1879 and 1880. Col. McCrory noted that his track could be extended directly west to the steamboat docks at Excelsior and decided to actively seek a share of the lucrative tourist traffic. In February, 1881, the company's name was changed to the Minneapolis, Lyndale & Minnetonka Ry. and construction began on a single track line from Lake Harriet to Excelsior in the early spring.

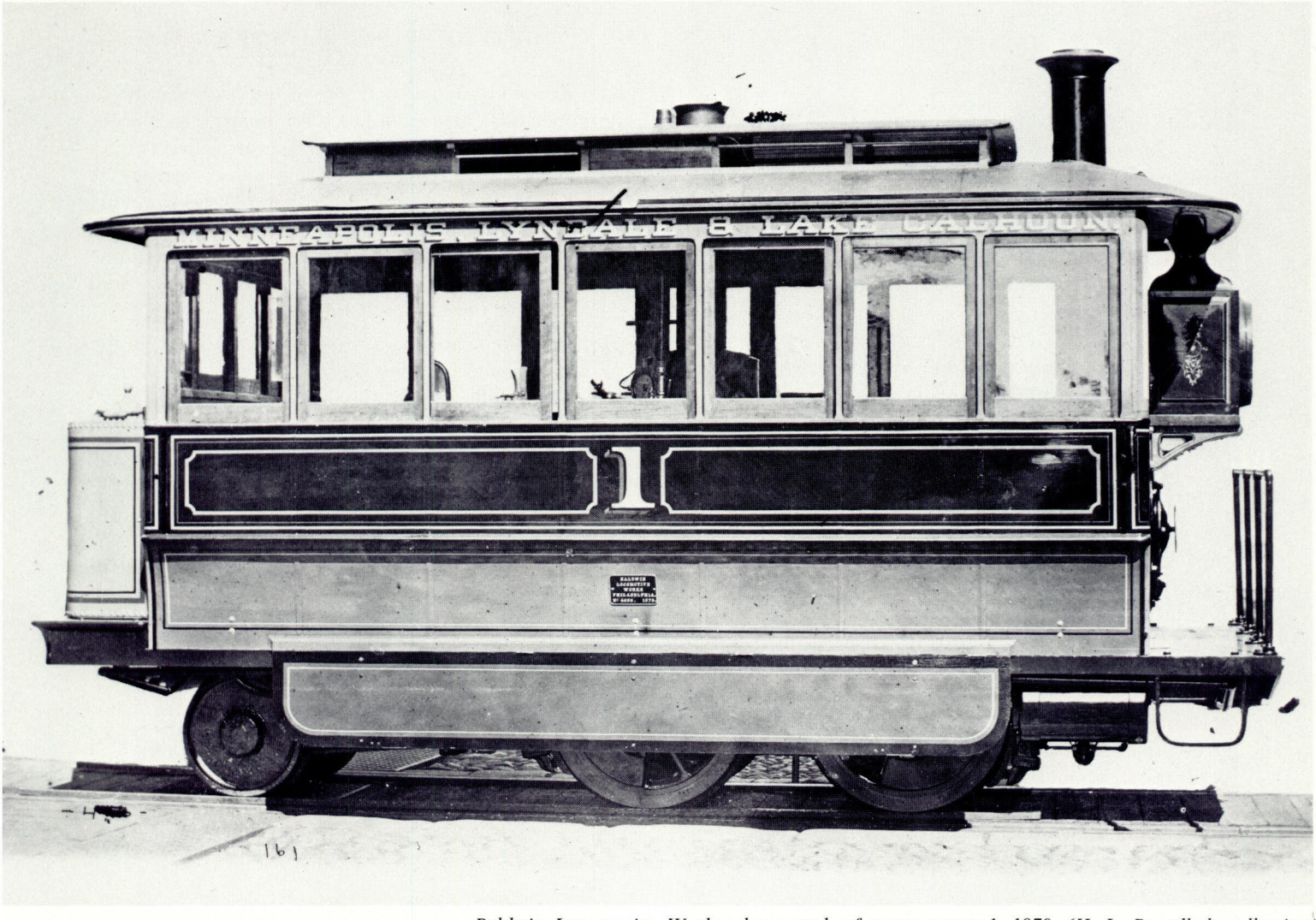
Two steam locomotives for the Excelsior line were

Above: Steam motor 1 with train, northbound, leaving Lake Calhoun with King's pavilion (built in 1877 by Wm. S. King) to the left of the track.

Steam motor 1 with train, northbound, on the newly completed track (1879) nearing 31st St. King's pavilion is at the right center. The pavilion later became the Lyndale Hotel.

(Both photographs Minnesota Historical Society collection.





Baldwin Locomotive Works photograph of steam motor 1, 1879. (H. L. Broadbelt collection)

A composite of two photographs (probably taken by W. H. Jacoby or A. H. Beal) from which Willis R. Willard made his engraving for "The Minnetonka Tourist" newspaper. The steamer is the "Hattie", which, according to Randolph Edgar, was built in 1879 and burned October 1, 1888. (Lake Minnetonka historical collection of S. D. Dimond)

ordered from the Baldwin Locomotive Works. Both were of the 2-6-0 "Mogul" wheel arrangement with 13" x 18" cylinders, 41" diameter driving wheels, and weighed 38,000 lbs. on driving wheels, 45,000 lbs. total. Completed in June, 1881, they were given the names "Robert S. Innes" (Builder's number 5694) and "William B. Hawkes" (builder's Number 5695) after two directors of the railroad. (In later years they were numbered #12 and #13.) In addition an express-freight trailer, #1, was acquired; painted blue with the word "Despatch" lettered in gold on each side, the company intended to operate it from a connection with the Chicago, Milwaukee & St. Paul Ry. at 29th St. and Nicollet Ave., Minneapolis, to Excelsior.

Probably due to financial circumstances, the company was unable to complete the Excelsior line during 1881. In the meantime, James J. Hill's Great Northern Ry. began construction of the huge Hotel Lafayette at Minnetonka Beach; it was opened with considerable fanfare July 4, 1882. The first revenue train over M.L.&M. Ry.'s Excelsior line was supposedly the Westminster Church Sunday School Picnic special on Sunday, June 15, 1882. Regular service did not begin until July 20th. The steam locomotives pulled the trains from Lake Calhoun to Excelsior while the steam motors were used between Lake Calhoun and downtown Minneapolis. Turntables were installed at Lake Calhoun and the Excelsior Docks. The steam locomotives were never operated north of the company's shops as they were not allowed on Minneapolis streets. Four to six daily round trips were operated during the summer months; running time was eighty minutes one way. Fares were quite high for that period of time:

From 1st Ave. S. and Washington Ave. to:

	One way	Round trip
26th St. and Nicollet Ave.	$ .05	$ .05
31st St. and Nicollet Ave.	$ .10	$ .10
Lake Calhoun	$ .15	$ .25
Lake Harriet	$ .20	$ .35
Excelsior (summer)	—	$ .75
Excelsior (winter)	—	$1.00

Service was reduced to two daily round trips during the winter months.

An excursion steamboat was built to Col. McCrory's specifications by the Dubuque Iron Works, Dubuque, Iowa. In 1884 the 85 ft. steel hull, engine and boiler were shipped on railroad flat cars to Solberg's Point, Lake Minnetonka. There the boat was completed and launched. "Ulysses" was the first steel-hulled boat launched in the lake; slim and narrow, she resembled the deep-draft boats on the Great Lakes. The first trial run took place July 29, 1884, and it was soon learned that she developed a starboard list at speed, and her draft was greater than the irregular depth of the lake permitted. The upper deck also gave her a top-heavy appearance. Subsequent changes to the superstructure failed to cure the list. Rumors circulated that she was dangerous. A group headed by Howard Trumbull and D. H. Kennedy acquired the boat in June, 1887, and re-named it the "Clyde". On July 13, 1889, it was shipped to Yellowstone Lake. There it was rebuilt, re-named "Zillah," and operated from 1890 through 1905.

Two additional steam motors were acquired from the Baldwin Locomotive Works, being completed during June, 1882. Both were of the 0-4-2 type with 11" x 16" cylinders, 41" diameter driving wheels, Eames vacuum brakes, and weighed 28,000 lbs. on driving wheels, 38,000 lbs. total. #3 was builder's number 6230 and #4 number 6231.

By 1883, the company's reputation was that of a railroad built and operated on the flimsiest of financial structures. Financial problems continually beset the little railroad. However traffic continued to increase and in that year the frequency of the Lake Calhoun trains was increased to every twenty minutes. Two new deluxe passenger trailers were purchased for the Excelsior trains.

In 1884 property was purchased consisting of the entire block bounded by 31st St., Nicollet Ave., 32nd St. and Blaisdell Ave. Offices, repair shop, roundhouse and turntable, and car storage yard were constructed. The facilities at Lake Calhoun were then removed, except for the waiting station at 34th St. (which was destroyed by fire in 1893).

During 1884 a single track line was constructed on Nicollet Ave. from 31st St. to 37th St., on 37th St. to Fort Ave. (later Hiawatha Ave.), and thence on private right-of-way parallel to the C.M.& St. P. Ry. tracks to Minnehaha Falls, ending at the C.M. & St. P. Ry. depot between 49th and 50th Streets. This line was built under the name of Minneapolis, Minnehaha & Fort Snelling Ry., and acquired by an exchange of M.L.&M. Ry. stock and mortgage bonds in November, 1884.

The extensive summer traffic proved to be insufficient to provide enough revenue to cover the deficits incurred through winter operations so in July, 1885, financial difficulties caused the sale of the company to a group composed of Charles A. Pillsbury, James J. Hill and S.S. Small. The new owners undertook several improvements during 1885.

Second track was added on 1st Ave. So. from Washington Ave. to 13th St., on 13th St. to Nicollet Ave., and on Nicollet Ave. from 13th St. to 37th St.

Two additional steam motors were purchased from the Baldwin Locomotive Works. Both were of the 0-4-2 type with 11" x 16" cylinders, 42" diameter driving wheels, Eames vacuum brakes, and weighed 28,000 lbs. on driving wheels, 38,000 lbs. total. Both were completed in May, 1885; #5 carried builder's number 7606 and #6 number 7607.

Six new large passenger trailers were received from an eastern builder.

Subsequently more new open passenger trailers were purchased as well as four new closed passenger trailers built by Pullman's Palace Car Co., surpassing the previous six cars in deluxe fittings and trimmings.

Timetable #32 effective September 10, 1885 (only half the schedule has been located) listed service as follows:

Leave Minneapolis for Lake Calhoun (30 minutes running time): 7:35, 8:15, 10:35, 11:30 A.M. and 12:45, 3:00, 4:30, 5:40, 6:10, 7:35, 8:15, 9:30, 10:50 P.M.

Leave Minneapolis for Lake Harriet (35 minutes running time): 6:43, 9:40 A.M. and 1:35, 2:15, 3:45, 6:50 P.M.

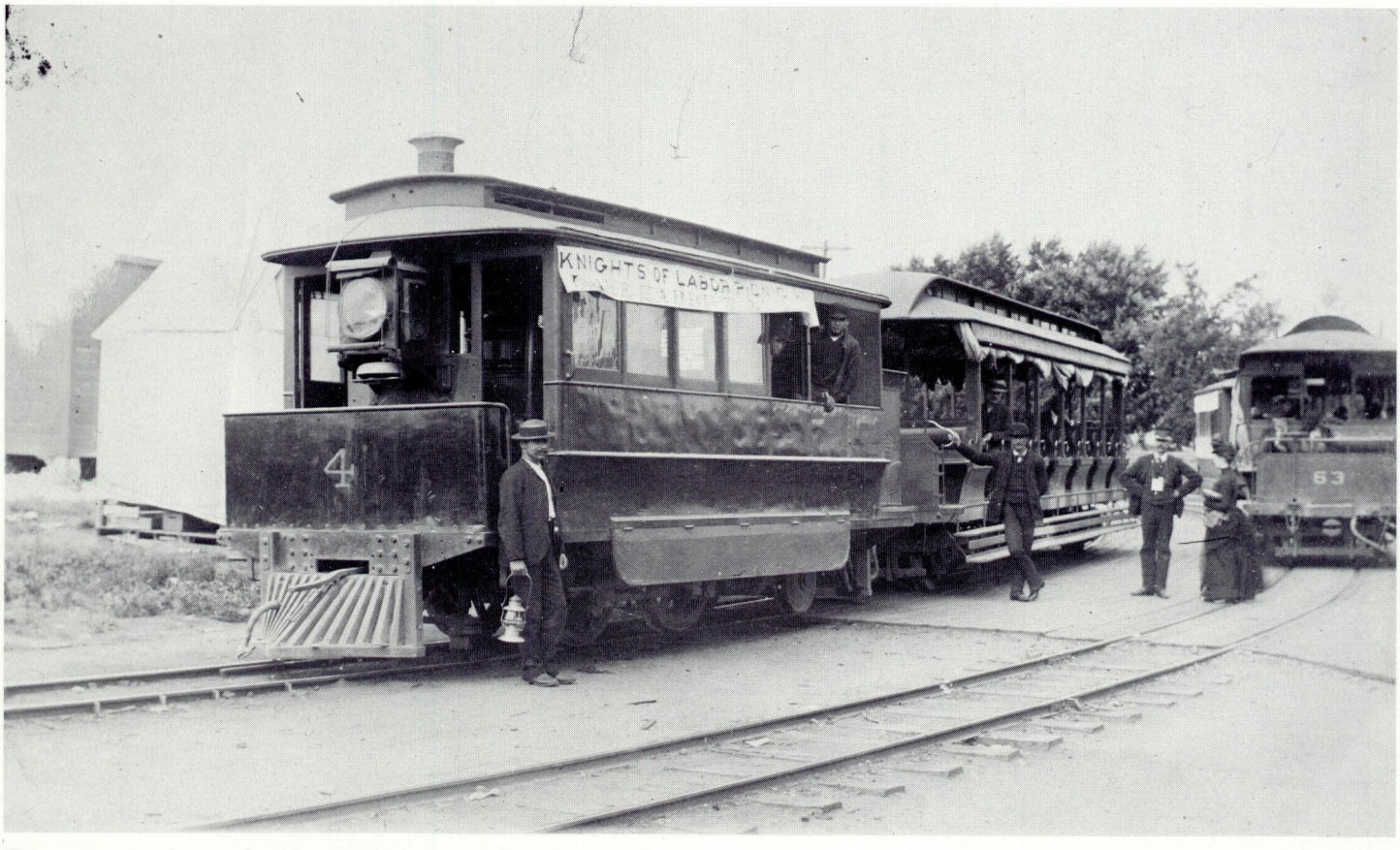
Leave Minneapolis for Excelsior (80 minutes running time): 9:00 A.M. and 12:10, 5:15 P.M.

Leave Minneapolis for Minnehaha Falls (no running time shown): 6:43, 8:15, 9:40 A.M. and 2:15, 3:45, 5:15 P.M.

(The six summer trips to Excelsior left Minneapolis at 9:00 A.M., 10:35 A.M., 12:10 P.M., 5:15 P.M., 6:50 P.M., and 8:15 P.M.).

The stations and running time are illustrated by the following typical run:

Station	**Leave**
Minneapolis	9:00 A.M.
13th St.	9:10
24th St.	9:15
31st St. Junction	9:20
Lyndale Ave.	9:25
Lake Calhoun	9:30
Lakewood Cemetary	9:32
Lake Harriet	9:35
Grimes	9:40
Emma Abbott Park	9:43
Mendelssohn	9:47
Junction City	9:51
Purgatory	10:06
Vine Hill	10:10
Christmas Lake	10:16
Excelsior	10:20



Two trains passing at the 31st St. Junction on the occasion of a Knights of Labor picnic at Lake Harriet. The depot building is out of the photograph to the right. (Robert Bowes collection)

Residents along 1st Ave. So. near the business district began objecting to the smoke and noise of the trains. The average train had started with one trailer but now had grown to two or three trailers. Many an excursion special and the 6:05 P.M. "Business Men's Limited" frequently carried four or five trailers. (By this time each car in a train was in charge of a conductor.) Meetings were held resulting in orders from the city council to the company stopping its trains at Washington Ave. Consequently, switching had to be done at that point and the people soon objected to this. Arrangements were made to switch cars and motors between 4th and 5th Streets on 1st Ave. after which they were backed down to Washington Ave. That still did not satisfy the objectors so trains were stopped at 6th St., the motors left there, and each trailer hauled to Washington Ave. by four horses. The city council recommended discontinuing steam operations within the city, but the company replied that no other suitable form of motive power was available to pull the long trains. In desperation, the company decided to try a newly developed electric locomotive to pull the trailers between 6th St. and Washington Ave. The VanDepoele Electric Manufacturing Co. of Chicago furnished one motor car, similar to the steam motors in appearance, equipped with one 40 h.p. electric motor. Copper overhead trolley wire was erected. The electric generator was driven by one 12" x 18" cylinder, common slide-valve steam engine, operating at (60?) 80 lbs. per square inch pressure and 125 revolutions per minute. The first electric operation began December 31, 1885. Each day's operations were approximately 18 hours duration requiring 3,000 lbs. of coal for the engine. This experimental use of electricity was not successful, and combined with the severe Minnesota winter weather, resulted in abandonment of the electric operation after only two or three weeks of service.

The Van Depoele electric motor car pulling an open trailer at 1st Ave. So. and 4th St. in January, 1886. (Minnesota Historical Society collection)

The resort hotel business at Lake Minnetonka began a slow decline during 1882; railroad construction had opened resort territory in other areas of the country so the number of out-of-state tourists gradually dwindled. The steam railroads served the three major hotels either by railroad or by steamboats owned by them, and eventually all were served by both railroad and steamboat. The first to suffer was the "Motor Line". Passenger revenue became insufficient to meet the costs of operation; the despatch trailer had drawn very little business. The track from Lake Harriet to Excelsior was reported as abandoned in August, 1886, and the two steam locomotives transferred to the Minnehaha Falls line. However an examination of the corporation's minute book places the matter in a slightly different perspective. It seems that in November, 1882, the board of directors proposed that the Excelsior line be extended to Hutchinson, Minn., during 1883. In August, 1883, the directors also proposed the building of an extension from 31st St. and Nicollet Ave. to Minnehaha Falls, Fort Snelling, and St. Paul, which was subsequently completed to Minnehaha Falls.

The change in ownership in 1885 involved James J. Hill of the St. Paul, Minneapolis & Manitoba Ry. The proposed extension to Hutchinson was again discussed by the directors in April, 1886. Only this time it was to be of 4'8½" gauge, and the existing line from Excelsior to the bridge over Minnehaha Creek (near what was later Brookside stop on the electric railway) would be so rebuilt, and a new line built from there to connect with the St. P., M. & M. Ry. mainline near Cedar Lake. Passenger and freight trains would be operated from the Minneapolis Union Depot to Hopkins, Excelsior and Hutchinson. In August, 1886, the proposal was modified to relocate the St. P. M. & M. Ry. connection from Hopkins northeasterly to the main line. The St. P. M. & M. Ry. advanced the M. L. & M. Ry. $248,829.38 to finance construction. By December 1, 1886, the St. P. M. & M. Ry. had offered to purchase the extension for that identical amount when completed, as well as the M. L. & M. Ry.'s existing line from Hopkins to Excelsior for an additional $100,000. This proposition was promptly accepted by the M. L. & M. Ry. The records are unclear as to whether any actual construction was ever undertaken by the M. L. & M. Ry.

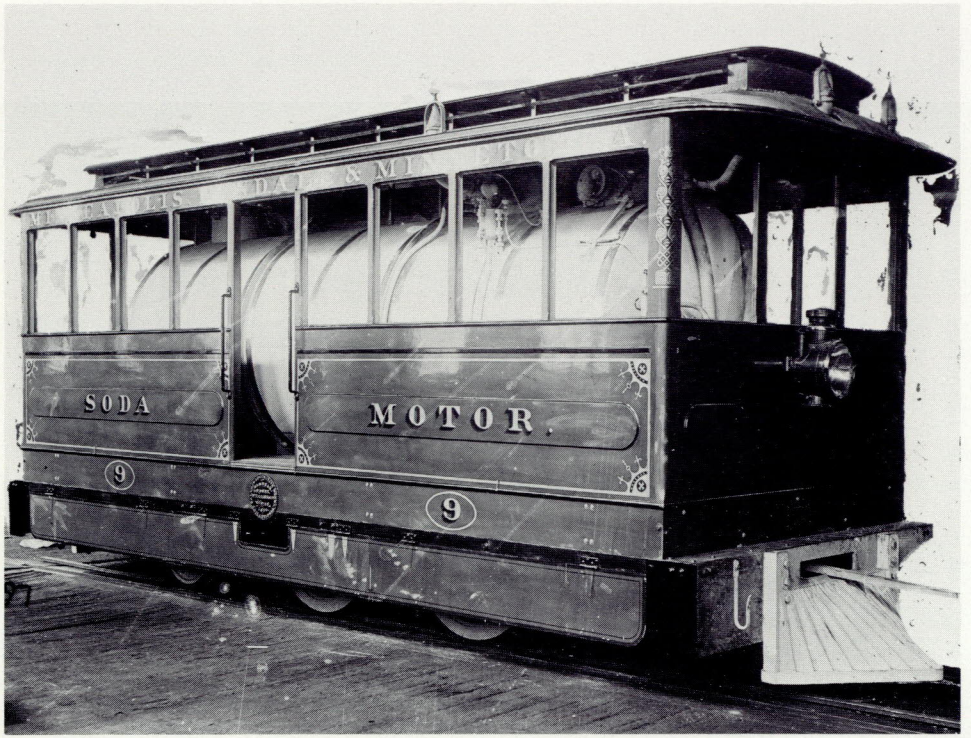
A German scientist had discovered that the addition of soda to water caused an increase in temperature and soon this development was applied experimentally to railroad locomotives. A large boiler was filled with a strong solution of caustic soda at a temperature of 329 degrees F. at the beginning of a run. Tubes within the boiler contained pure water which evaporated from the heat producing steam for the cylinders. The exhaust steam passed into the soda chamber of the boiler where it condensed and reacted with the soda, thus increasing the temperature of the solution and sustaining steam production. The M. L. & M. Ry. seized upon this invention as the long-awaited solution to the problem of pulling its trains through downtown Minneapolis. Baldwin Locomotive Works built four "soda motors" for the company in September, 1886, all of the 0-4-2 wheel arrangement: #7 (builder's number 8127), #8 (builder's number 8144), #9 (builder's number 8152) and #10 (builder's number 8159).

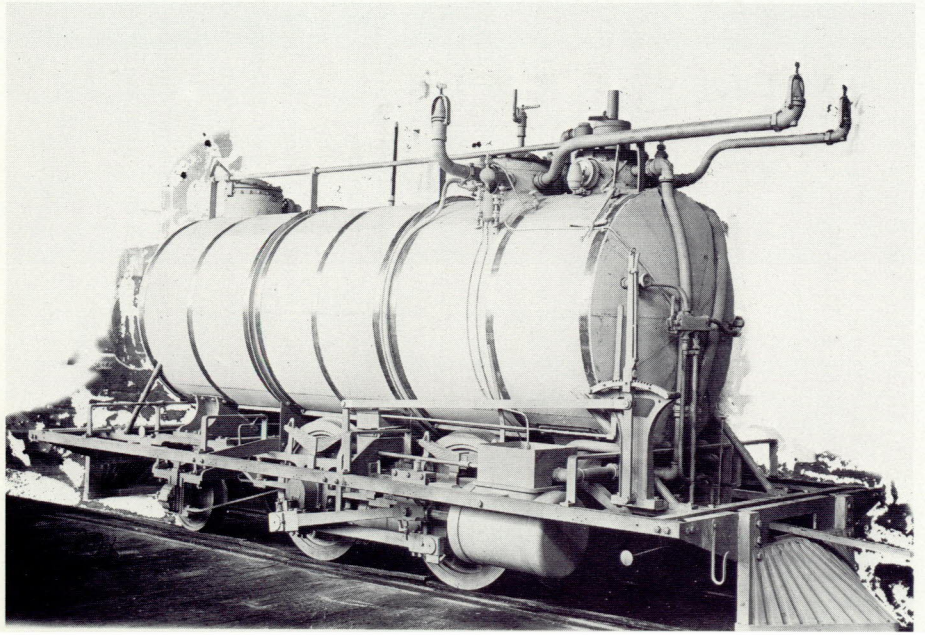
A history of Minneapolis St. Ry. written by C. G. Goodrich in 1909 reported that the "soda motors" did not give satisfactory operation and were discontinued after a very short time.

The M. L. & M. Ry.'s indebtedness at this time amounted to $620,000: $270,000 in first mortgage bonds and $350,000 in unsecured floating debt. James J. Hill held $375,000, Charles A. Pillsbury $150,000 and Thomas Lowry $95,000. The City of Minneapolis had passed an ordinance requiring cable operation, or some motive power other than steam, on the line within the city by November 1, 1889. The M. L. & M. Ry. proposed to issue $1,000,000 in 30 year 5% first mortgage bonds effective April 1, 1887, to pay off existing debt and finance the improvements required by the ordinance. Minneapolis St. Ry. agreed to guarantee the interest payments to make the bonds marketable, so as of April 1, 1887, the property and equipment were leased to MSR for thirty years; Calvin Goodrich was appointed General Manager. The trust agreement for the proposed bond issue included as security: (1) the main line from Bridge Square, Minneapolis, to Hopkins — 11 miles, of which 5 miles was double track; (2) the branch line to Minnehaha Falls — 5 miles; and (3) 1 locomotive, 12 motors, 38 passenger cars, 10 flat cars, 2 box cars, and 9 dump cars.

Two additional steam motors had been purchased from the Baldwin Locomotive Works in 1887 according to one source, and in January, 1887, according to the builder's records: both were of the 0-4-2 type with 11" x 16" cylinders, 42" diameter driving wheels, Eames vacuum brakes, and weighed 28,000 lbs. on driving wheels, 38,000 lbs. total. #11 was builder's number 8320 and #12 was number 8321.

MSR constructed additional trackage during 1887. Second track was added on 31st St. from Nicollet to the right-of-way at Irving Ave. So. Single track was built on Nicollet Ave. So. from 37th St. to the Washburn Home at 50th St. According to MSR the M. L. & M. had discontinued service beyond Lake Calhoun in 1886 when the Excelsior line was abandoned, but MSR restored the service to Lake Harriet in 1887. Also in 1887, MSR constructed a pavilion at Lake Harriet on the site of the subsequently built waiting station-loading platform at 42nd St. and operated it under an agreement with the Minneapolis Park Board. It was destroyed by fire a few years later. MSR continued steam operations as usual from 1887 through 1889. The 1890 U.S. Census reported 23.00 miles of steam operated trackage, 13 steam motors, 2 steam locomotives, 56 passenger trailers, and 9 freight trailers.





Above left: Baldwin Locomotive Works photograph of the exterior of "soda motor" 9, September, 1886.

Below left: The builder's photograph of the "soda motor" machinery, taken from the front of the locomotive.

(Both photographs H. L. Broadbelt collection)

Above right: The soda motors proved unsuccessful and were converted to conventional steam locomotives after four months' service. Steam motor 10, one of these conversions, was photographed at the 31st St. Junction depot. (Joe Hutchinson collection)

The end of steam operation took place when MSR undertook electrification of the entire street railway system in Minneapolis. Track was abandoned entirely on 1st St. from Nicollet Ave. to 1st Ave. So. The last steam train operated over 1st Ave. So. and Nicollet Ave. from 1st St. to 31st St. on August 19, 1890, and the work of electrifying this portion was begun. Electrification was completed to 38th St. and Nicollet Ave. September 22, 1890, and to 50th St. and Nicollet Ave. October 5, 1890. Electrification was next completed on 31st St. from Nicollet Ave. to the right-of-way and on the right-of-way to Lake Harriet May 24, 1891. An entirely new line in a different location was built to Minnehaha Falls, completed June 14, 1891. The records do not indicate when the M. L. & M. Ry. line on 37th St. and the Minnehaha right-of-way to Minnehaha Falls was abandoned, nor the date of the very last steam operation.

Apparently the proposed bond issue of 1887 was never consummated, as in 1889 both M. L. & M. Ry. and MSR, as lessor and lessee, joined in issuing $5,000,000 of 35 year, 5%, first consolidated mortgage bonds on all of their properties. $620,000 was used to retire the previous bonds and unsecured debt, plus $180,000 of additional floating debt which had been incurred.

An advertisement by MSR in the June, 1891, issue of the Street Railway Journal offered the following "Motor Line" equipment for sale: 12 steam motors (15 to 20 tons), 2 steam locomotives with tenders (20 and 25 tons), 21 passenger trailers (26' to 40' long), 34 open passenger excursion trailers (34' long), 8 flat trailers (30' long), 1 despatch car, and 1 caboose (24' long). One steam motor and four closed passenger trailers were sold to the North St. Paul R.R. One steam motor and four trailers were sold to the Madison Motor Line, Madison, S.D. Fourteen of the open excursion trailers were rebuilt by Northern Car Co., Robbinsdale, to electric motor cars for MSR in 1892. Consideration had been given to adapting the closed trailers to electric motor cars but this was found impractical because of their heavy weight. 2-6-0 steam locomotive #13 was sold to the M. St. P. & S. S. M. Ry. in 1891 which rebuilt it to 4'8½" gauge in their Shoreham shops, becoming #322 (Class Z); the other was sold to the Sumpter Valley Ry. in 1893 as their #3. One closed trailer, originally built by Barney & Smith Car Co., was sold to the M. St. P. & S. S. M. Ry. in January, 1893, and rebuilt in their Shoreham shops during June, 1893, to business car #200. An elderly former resident recalled closed trailers being hauled up 20th Ave. No. to Northern Car Co., Robbinsdale; some were destroyed in the Northern Car Co. fire while the bodies of others, including the despatch car, were sold. Disposition of the remaining equipment is unknown.

The depot at 31st St. Junction, looking west. Nicollet Ave. is in the foreground, while the curving tracks onto 31st St. are visible under the platform canopy. Note the open trailers in the storage yard and the partially completed powerhouse chimney. (Ken Fletcher collection)

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.

LOCAL SUBURBAN DIVISION

Minneapolis St. Ry. had secured from the Minneapolis City council the necessary rights to build track on certain streets connecting with the suburbs of St. Louis Park and Robbinsdale. MSR decided to lease these rights to other companies constructing lines within the suburbs themselves, reserving the right to purchase the track within Minneapolis when and if it saw fit to do so.

NORTH SIDE STREET RAILWAY CO.

This company was incorporated in March, 1890, by Thomas B. Walker, John M. Moon, George P. Wilson (all of Minneapolis), Daniel M. Robbins and Andrew B. Robbins (both of St. Paul).

An all single track line was completed during July, 1891, on 32nd Ave. N. (Lowry Ave.) from the Minneapolis city limits to Oak Lake Ave., thence on Oak Lake Ave. and private right-of-way to Hubbard Ave., and on Hubbard Ave. to 42nd Ave. N., all within Robbinsdale. That portion of the track on 32nd Ave. N. from the city limits east to Penn Ave. located within the city of Minneapolis was to be constructed by the Minneapolis St. Ry. However MSR had been delaying the start of construction and was ordered in July to start at once by the Minneapolis city council. MSR records give no indication as to when this connecting track was completed; the MSR line that was to connect with the Robbinsdale trackage was built in two stages: Penn Ave. N. from 20th Ave. N. (Broadway) to 30th Ave. N., August 13, 1891; and Penn Ave. N. from 30th to 32nd Ave. N., 1892.

Minnesota Railroad & Warehouse Commission records list the entire line as completed in 1892. An elderly former resident claimed to remember seeing a "soda motor" with one small closed trailer (both painted red) operating on the line; perhaps one of the former Minneapolis Lyndale & Minnetonka Ry. motors with a passenger trailer provided service until the track connection with MSR was finally completed.

When electric cars began operating in 1892, the equipment was leased from MSR. Electric power was also furnished by MSR. NSSR supposedly had a carhouse located at 42nd Ave. N. and Hubbard Ave. in Robbinsdale. An article in the local newspaper for June 3, 1906, reported that NSSR had purchased four large double truck cars from TCRT to replace two cars currently in use that were to be retired. TCRT records show that #732 and #734 ("Windsplitters") were sold to NSSR May 29, 1906, but never delivered.

Instead, the decision was made for TCRT's wholly-owned subsidiary, the Minneapolis & St. Paul Suburban Ry., to acquire the property. The transaction was completed November 5, 1906, at a price of $30,000.00.

MINNEAPOLIS LAND & INVESTMENT CO.

This company was incorporated in September, 1890, by Thomas B. Walker, C.G. Goodrich, L.F. Menage, H.F. Brown, Thomas Lowry, R.C. Haywood, Charles A. Pillsbury, George H. Christian, G.G. Boshart and A.M. Allen. The purpose was to develop land for the attraction of industry to the St. Louis Park area. As a result, the following firms built plants there: Monitor Manufacturing Co., Jarless Spring Carriage Co., Thompson Wagon Co., and Minneapolis Esterly Harvester Co.

To provide transportation for the workers, a streetcar line was to be constructed. A franchise was received from St. Louis Park on February 6, 1891, which provided, among other things, for: a 5 cent fare, free transfers to MSR, no freight hauling, electric operation only with power to be purchased from MSR, and a 25 m.p.h. speed limit.

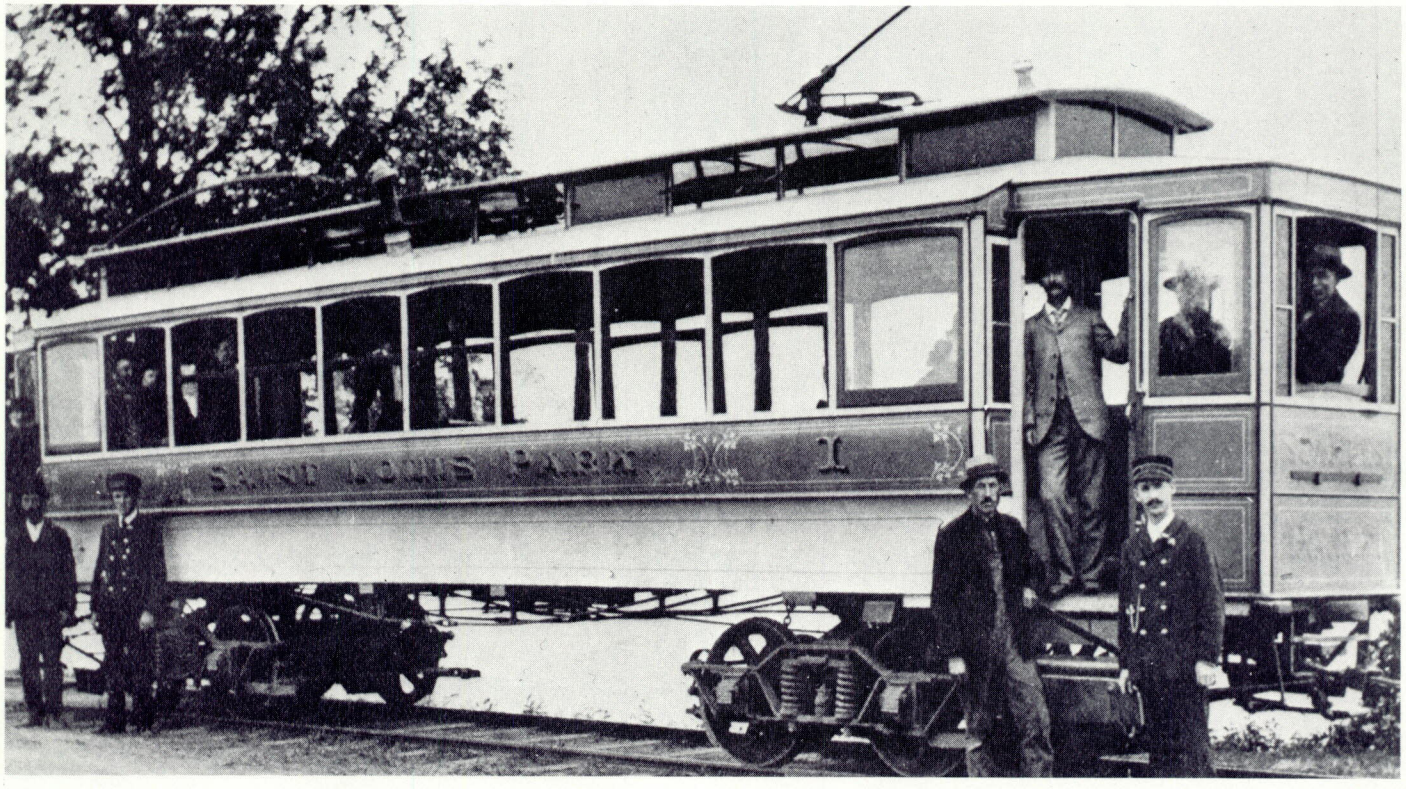
Construction began in May, 1892, on a single track line from 29th St. (now Lagoon Ave.) and Hennepin Ave., Minneapolis, on 29th St. and W. Lake St., around Lake Calhoun adjacent to the Hastings & Dakota R.R. tracks, directly west on Lake St. about one mile (crossing the railroad tracks in the process) and then southwesterly on Lake St. past the Esterly Harvester Works to the end at W. Lake St. and Brownlow Ave.

Operations began December 21, 1892, using three or four rented MSR cars as ML & I's new cars had not yet arrived. Power was furnished from MSR's 31st St. and Nicollet Ave. powerhouse to begin operations but the local trade journals reported that ML&I was completing its own powerhouse. The bridge over the railroad tracks had not been completed when operations started, so passengers were transferred at that point to a shuttle car operating between the tracks and the west end of the line.

The August, 1893, issue of a local trade publication reported that "the Minneapolis St. Ry. (sic) was further improved by the addition of handsome new vestibuled cars for the St. Louis Park line." These were three cars, numbered #1-#3, built by St. Louis Car Co. in 1893; 45' long, they were double truck (arch bar type), deck roof, double end, closed, vestibuled passenger motor cars. They were placed in operation when the bridge over the railroad tracks was completed. Three cars were needed to provide twenty minute headway.

1892 was a boom year for the industries located on the line, but 1893 proved disastrous: the Monitor Mfg. Co. closed down for one year, the Minneapolis Esterly Harvester Co. failed, and the Thompson Wagon Co. was destroyed by fire. As the nation recovered from the 1893 financial panic, St. Louis Park's fortunes also improved.

Work begin in August, 1897, on an extension of the line from St. Louis Park to Hopkins. An April, 1900, street directory described the route as follows: through St. Louis Park to Monk Ave., thence south to Excelsior Ave.,



Minneapolis Land & Investment Co. car 1 on the St. Louis Park line right-of-way at Lake Calhoun about 1893. (Minnesota Historical Society collection)

thence west to Hopkins. Track laying was not completed until January, 1899; regular service was established on January 16th. The additional cars required for this service were probably rented from MSR; records indicate that cars #791, #792 and #795 were used on the line.

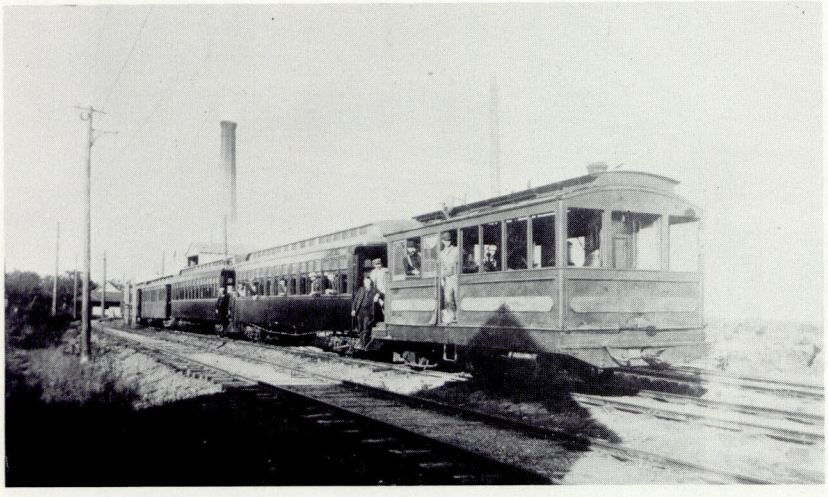
On October 26th or 27th, 1902, lightning struck the carhouse starting a fire which destroyed the building together with one car. In 1904 a tornado damaged the rebuilt carhouse and flipped one car upside down at the St. Louis Park end of the line.

TCRT's wholly-owned subsidiary, the Minneapolis & St. Paul Suburban Ry. Co., acquired the property at a price of $40,000.00 on November 12, 1906, one week after it had acquired the North Side St. Ry. Co.

STILLWATER DIVISION

The North St. Paul Railroad Co. was incorporated in August, 1889, by Walter S. Morton (President), James W. Jones (Secretary), Wm. H. Lightner, Lane K. Stone, all of St. Paul, and Sam R. Murray (Treasurer) of North St. Paul. The company proposed to build from the St. Paul city limits northeasterly through North St. Paul to a connection with the Wisconsin Central Ry. near White Bear Lake. As actually completed the line was built to 3'0" gauge from St. Paul, at E. 7th St. and Newcombe St. (one block east of Duluth Ave.), east on E. 7th St. to private right-of-way, then north by northeast to North St. Paul (Silver Lake?). A track connection with the C. St. P. M. & O. Ry. was located at Hazel Park where the two lines crossed. Operation began in April, 1890, using a steam motor and four passenger trailers (built by LaClede Car Co.) purchased second-hand from the Minneapolis, Lyndale & Minnetonka Ry.

On March 31, 1892, the company was re-organized as the St. Paul & White Bear R.R.; officers were W.S. Morton (President), Henry A. Castle (Secretary), and B.F. Meek Jr. (Treasurer). A contract was awarded to the Northwest Thomson-Houston Co. in April to electrify the existing steam railroad to 4'8½" gauge, and to construct and electrify an extension from the end of the existing line to Mahtomedi on White Bear Lake. Work was pushed rapidly, using 48 lb. T rail, and the 10.959 mile line was completed in June, 1892. An 86' x 122' brick building containing the carhouse and steam powerhouse was built at Pennsylvania St. and the right-of-way in North St. Paul. A track connection with the St. Paul & Duluth R.R., which included a spur leading to a turntable, was located at the end of the line at Mahtomedi. Eight double truck, deck roof, open rear platform, 34' closed passenger motors cars, #1-#8, were purchased from Pullman's Palace Car Co. in 1892. Regular passenger service began July 1, 1892, the first timetable listing 25 daily round trips (30 minute headway), one round trip requiring 80 minutes. The steam motor and passenger trailers were retained, presumably having been converted to 4'8½" gauge.



Left: Former North St. Paul R. R. steam motor 2 with four closed passenger trailers at the east end of the North St. Paul powerhouse of the St. Paul & White Bear R.R. (Robert Schumacher collection)

Below: A St. Paul & White Bear R.R. passenger car (left) connecting with a St. Paul City Ry. passenger car (right) at E. 7th and Newcombe Streets, St. Paul, in 1898. The SPCR car is the test car built by Northern Car Co. in 1892 for the Northwest Thomson-Houston Co. (Minnesota Historical Society collection)

An amusement park, named "Wildwood Park", was built on 5 acres of land adjacent to the line on the southeastern shore of White Bear Lake. Facilities consisted of a merry-go-round, bowling alley, switchback railway, and bath-houses with laundry.

The company went into receivership during 1895, at which time it was listed as owning 11.5 miles of track, 8 passenger motor cars, 1 steam motor and 4 passenger trailers. The entire property, consisting of the railway line and equipment, the 5 acres at Wildwood including all buildings and docks, and the powerhouse-carhouse-office, freight depot and coal shed at North St. Paul were sold at a mortgage foreclosure auction held February 1, 1896, to Emerson W. Peet and Arthur Perry. The St. Paul & Suburban Ry. was incorporated in West Virginia during February, 1896, by E.W. Peet, Ambrose Tighe, Frank B. Kellogg, C.W.G. Withee, and C.A. Severance (all of St. Paul) and acquired the entire property from Peet and Perry in exchange for 374 shares of capital stock valued at $37,400.

A timetable effective October 26, 1896, reveals that service to Mahtomedi was discontinued during the winter months. The daily, except Sunday, schedule was as follows:

Northbound: Leave E. 7th St. for Harvester Works, Maryland St. and North St. Paul: 7:00, 8:15, 9:30, 10:30, 11:30 A.M. and 12:30, 1:30, 2:30, 3:30, 4:30, 5:30, 6:00, 6:40, 8:00, 10:00, 11:45 P.M.

Northbound: Leave E. 7th St. for Harvester Works and Maryland St. only: 6:40 and 7:55 A.M.

Southbound: Leave North St. Paul: 6:00, 7:25, 9:00, 10:00, 11:00, 12:00 A.M. and 1:00, 2:00, 3:00, 4:00, 5:00, 6:00, 7:00, 9:30, 11:00 P.M.

Southbound: Leave Maryland St.: 6:50 and 8:05 A.M.

Southbound: Leave Harvester Works: 5:40 P.M.

The Sunday schedule provided considerably less service.

Officers of the company during 1897 were E.W. Peet (President), William F. Peet (Vice President), and Ambrose Tighe (Secretary and Treasurer). The financial statement for the fiscal year ended February 1, 1898, provides some hints as to the extent of operations:

Receipts	
Passenger fares	$14,500
Switching-freight	489
Wildwood-rent	1,000
Wildwood-sundry	231
Pavilion	926
Total	$17,146
Operating expenses	16,932
Net profit	214
Beginning surplus	839
Ending surplus	1,053

The circumstances through which TCRT became interested in the company and how it was acquired are unknown. Personal notes of an early TCRT official refer to "taking charge of Wildwood June 24, 1898". At the stockholders meeting held July 12, 1898, all existing officers and directors resigned effective June 30th, and the following were elected to take their place: Calvin Goodrich (President), Thomas Lowry, J.F. Calderwood, and A.Z. Levering (Vice President). It is known that Lowry held 329 shares of capital stock, and Calderwood and Levering one share each. Offices were moved to those of the St. Paul City Ry. in the Globe Building, St. Paul.

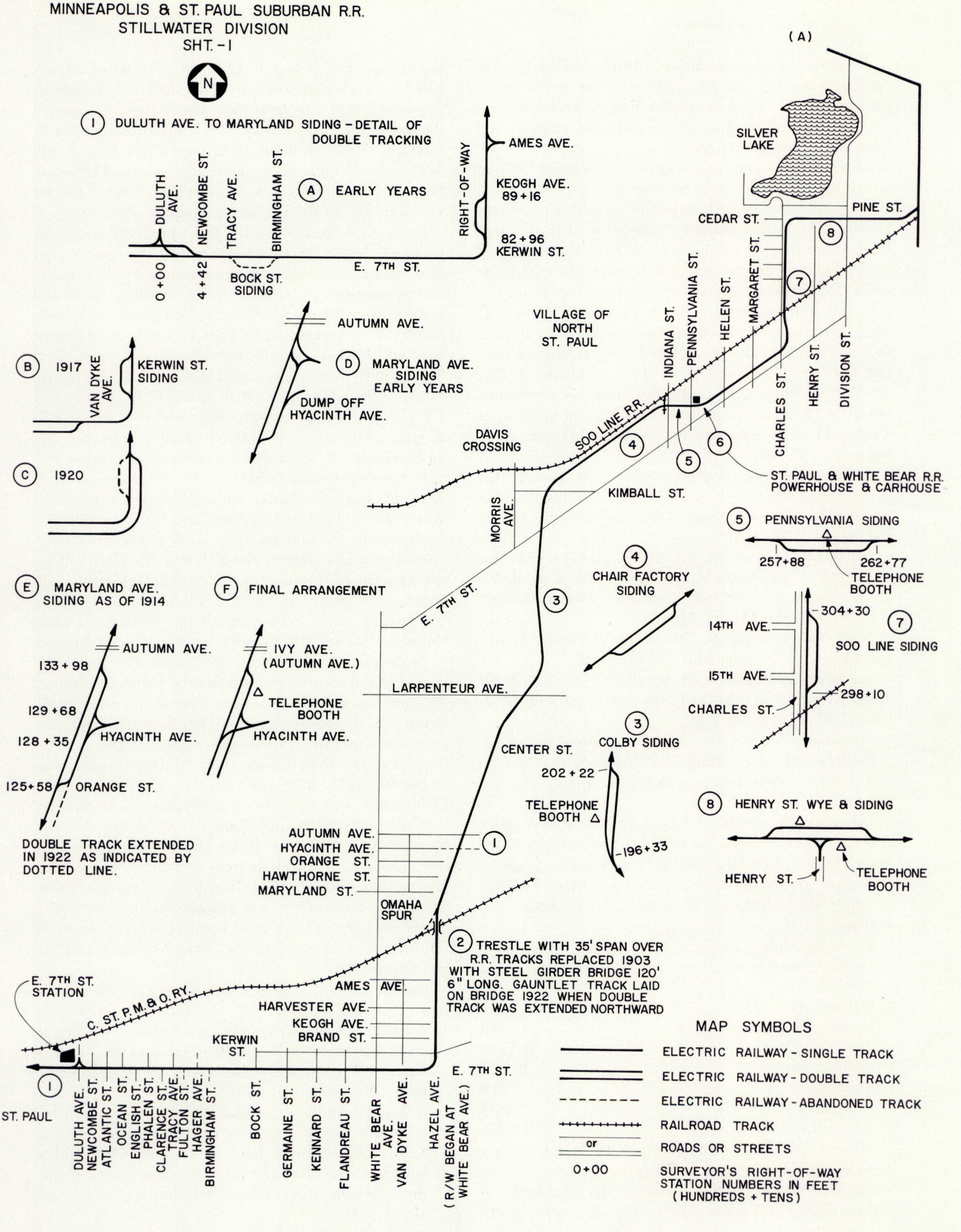
Presumably to improve the line's profitability the extension to Stillwater was undertaken. It also appears that in obtaining a franchise for operation in Stillwater, the company agreed to build and operate a local street railway system. This division was to be the first operation outside either the Minneapolis or St. Paul city limits so for various legal and financial reasons the Minneapolis & St. Paul Suburban Ry. was incorporated June 9, 1899, by Thomas Lowry, Calvin Goodrich, M.B. Koon, M.D. Munn, and J.F. Calderwood. As a wholly-owned subsidiary of TCRT, it acquired the property of the St. Paul & Suburban Ry. on September 6, 1899, and thus became the owner and operator of the electric railway from E. 7th St. and Duluth Ave., St. Paul, to Mahtomedi and Stillwater, the local street railway lines in Stillwater, and Wildwood Park.

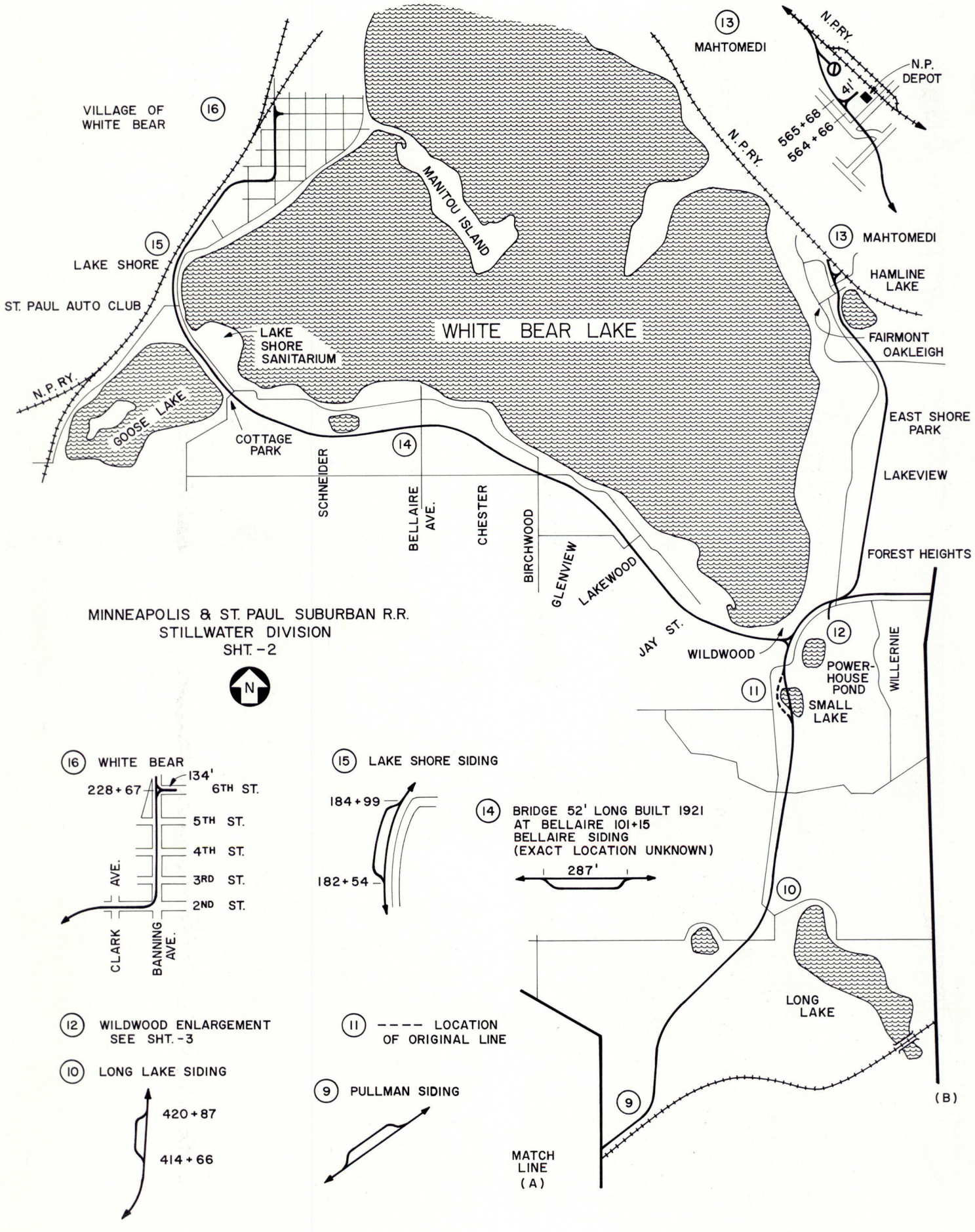
Meanwhile, on May 10, 1899, work had begun on the extension to Stillwater by the Nelson & McAllister Construction Co. of Minneapolis. This was a single track line, starting at Willernie (1.52 miles south of Mahtomedi on the existing line), and ending at the Stillwater Union Depot, a distance of 8.42 miles. Materials were shipped to Mahtomedi on the Northern Pacific Ry. and then hauled to the construction site by the old steam motor. The tunnel under the Wisconsin Central Ry. east of Willernie was completed July 1st. The first trip over the entire line was made with the private car on August 21st. Regular service from downtown St. Paul to Stillwater was begun August 23, 1899. The entire line east of 7th St. and Duluth Ave. was single track with passing sidings.

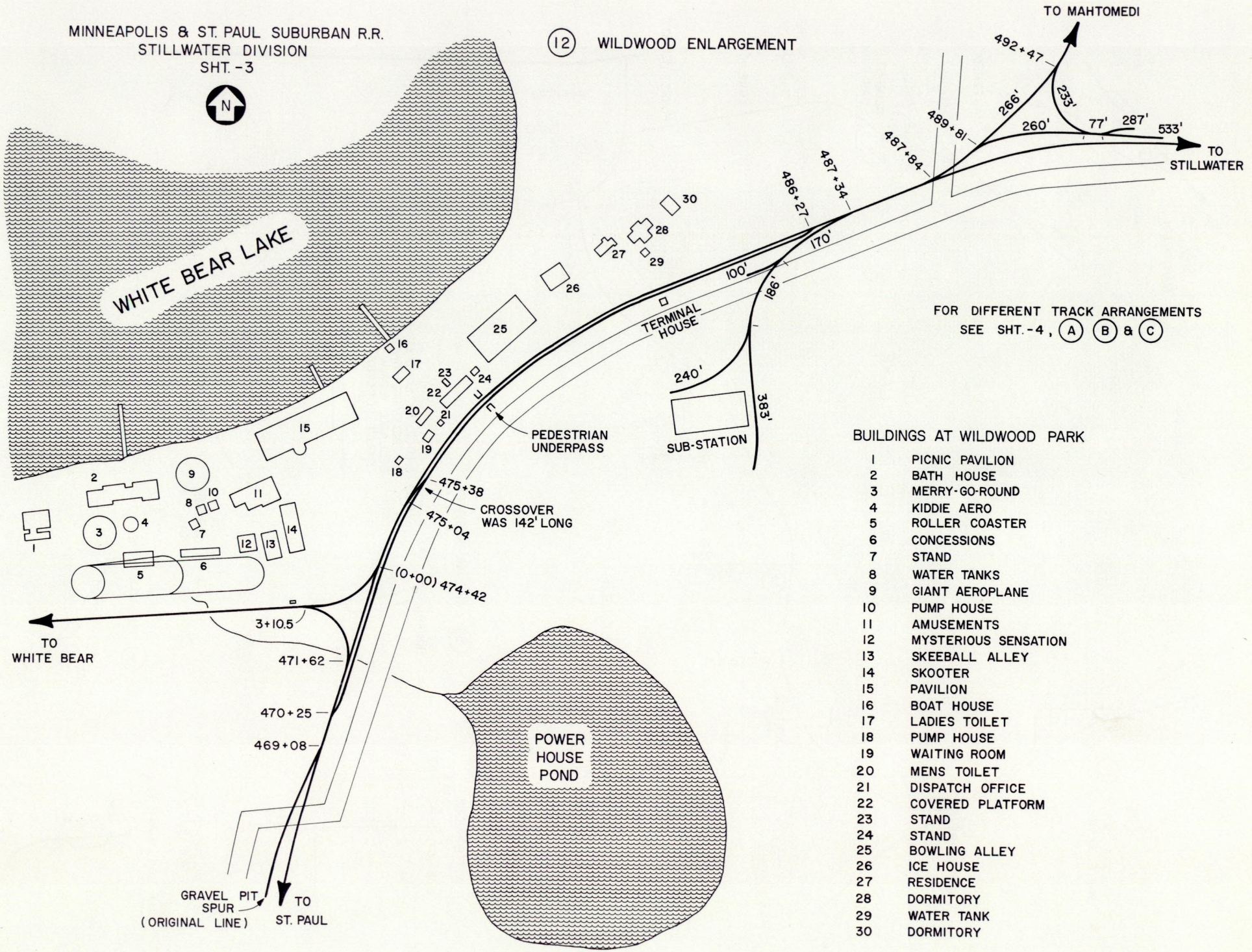
Construction of the local lines in Stillwater was also completed in 1899. The TCRT official's personal notes refer to the first local operation in Stillwater as taking place on November 6, 1899. The frame carhouse at Owen St. and the right-of-way was probably built at this time. Three single track lines were constructed: "Owen St.", "Wilkin St.", and "South 3rd St." (which ended at Oak St. and Orleans St.).

The only subsequent track extensions were the following:

1. A single track line from the lower wye at Wildwood along the shore of White Bear Lake to 6th St. and Banning Ave. in White Bear, 4.27 miles long, completed November 27, 1904.
2. A single track line from Oak St. and Orleans St. (the Stillwater city limits), over various streets to South Stillwater (re-named Bayport in 1911), 3.52 miles long. Construction work was performed by the Foley Brothers Construction Co. and the line was completed May 5, 1905.

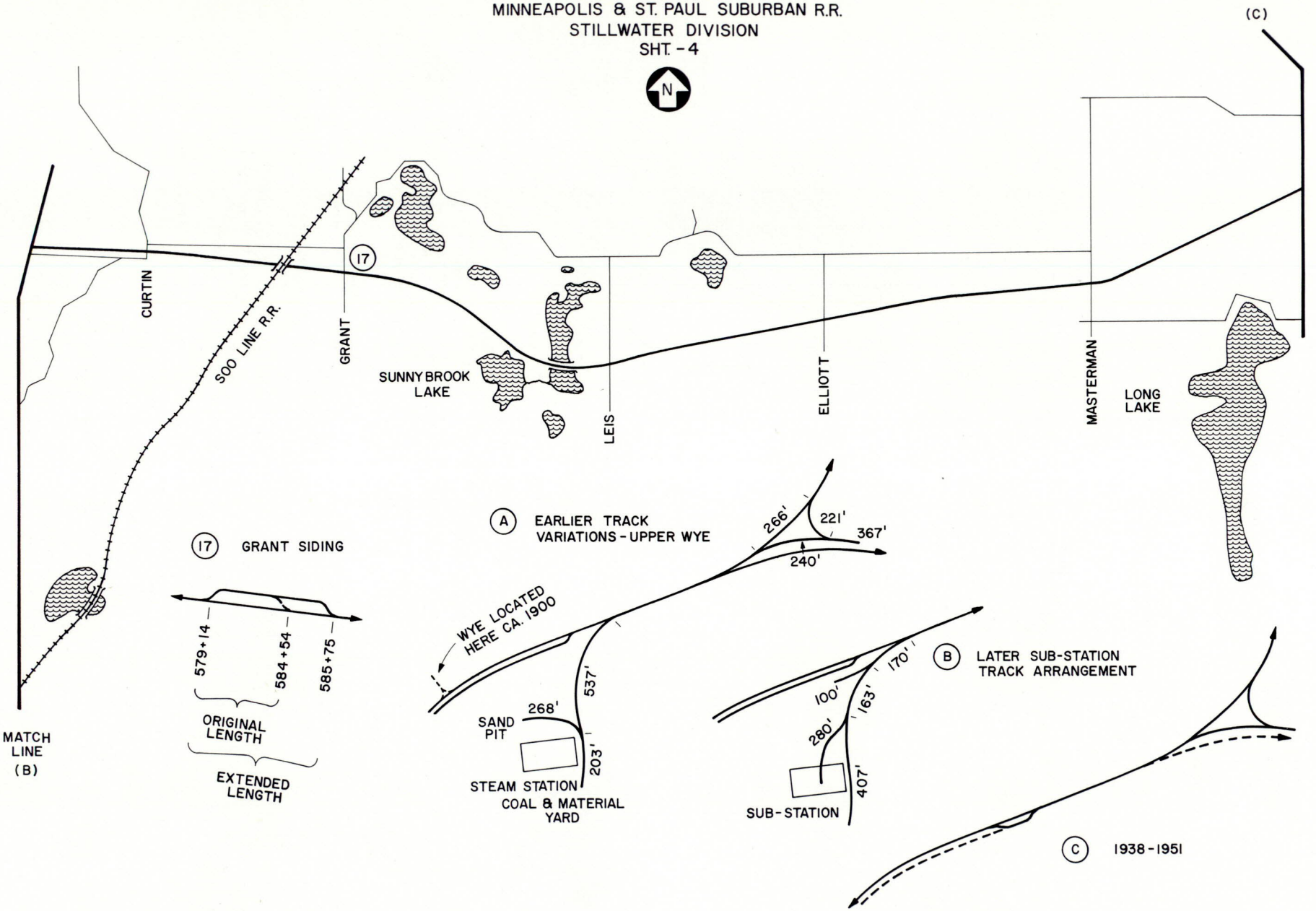

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
STILLWATER DIVISION
SHT. - 1
N
(A)
(1) DULUTH AVE. TO MARYLAND SIDING - DETAIL OF DOUBLE TRACKING
(A) EARLY YEARS
DULUTH AVE.
NEWCOMBE ST.
TRACY AVE.
BIRMINGHAM ST.
RIGHT-OF-WAY
AMES AVE.
KEOGH AVE. 89+16
82+96 KERWIN ST.
E. 7TH ST.
BOCK ST. SIDING
0+00
4+42
SILVER LAKE
PINE ST.
CEDAR ST.
(8)
(7)
MARGARET ST.
HELEN ST.
PENNSYLVANIA ST.
INDIANA ST.
CHARLES ST.
HENRY ST.
DIVISION ST.
VILLAGE OF NORTH ST. PAUL
(B) 1917 VAN DYKE AVE. KERWIN ST. SIDING
(C) 1920
AUTUMN AVE.
(D) MARYLAND AVE. SIDING EARLY YEARS
DUMP OFF HYACINTH AVE.
DAVIS CROSSING
SOO LINE R.R.
(4)
(5)
(6)
ST. PAUL & WHITE BEAR R.R. POWERHOUSE & CARHOUSE
KIMBALL ST.
MORRIS AVE.
(5) PENNSYLVANIA SIDING
257+88
262+77
TELEPHONE BOOTH
(E) MARYLAND AVE. SIDING AS OF 1914
(F) FINAL ARRANGEMENT
AUTUMN AVE.
133+98
129+68
128+35 HYACINTH AVE.
125+58 ORANGE ST.
DOUBLE TRACK EXTENDED IN 1922 AS INDICATED BY DOTTED LINE.
IVY AVE. (AUTUMN AVE.)
TELEPHONE BOOTH
HYACINTH AVE.
E. 7TH ST.
(3)
(4) CHAIR FACTORY SIDING
LARPENTEUR AVE.
304+30
(7) SOO LINE SIDING
14TH AVE.
15TH AVE.
CHARLES ST.
298+10
CENTER ST.
(3) COLBY SIDING
202+22
TELEPHONE BOOTH
196+33
(8) HENRY ST. WYE & SIDING
HENRY ST.
TELEPHONE BOOTH
AUTUMN AVE.
HYACINTH AVE.
ORANGE ST.
HAWTHORNE ST.
MARYLAND ST.
(1)
OMAHA SPUR
(2) TRESTLE WITH 35' SPAN OVER R.R. TRACKS REPLACED 1903 WITH STEEL GIRDER BRIDGE 120' 6" LONG. GAUNTLET TRACK LAID ON BRIDGE 1922 WHEN DOUBLE TRACK WAS EXTENDED NORTHWARD
E. 7TH ST. STATION
C. ST. P. M. & O. RY.
AMES AVE.
HARVESTER AVE.
KEOGH AVE.
BRAND ST.
KERWIN ST.
E. 7TH ST.
(1)
ST. PAUL
DULUTH AVE.
NEWCOMBE ST.
ATLANTIC ST.
OCEAN ST.
ENGLISH ST.
PHALEN ST.
CLARENCE ST.
TRACY AVE.
FULTON ST.
HAGER AVE.
BIRMINGHAM ST.
BOCK ST.
GERMAINE ST.
KENNARD ST.
FLANDREAU ST.
WHITE BEAR AVE.
VAN DYKE AVE.
HAZEL AVE.
(R/W BEGAN AT WHITE BEAR AVE.)
MAP SYMBOLS
ELECTRIC RAILWAY - SINGLE TRACK
ELECTRIC RAILWAY - DOUBLE TRACK
ELECTRIC RAILWAY - ABANDONED TRACK
RAILROAD TRACK
or
ROADS OR STREETS
0+00
SURVEYOR'S RIGHT-OF-WAY STATION NUMBERS IN FEET (HUNDREDS + TENS)

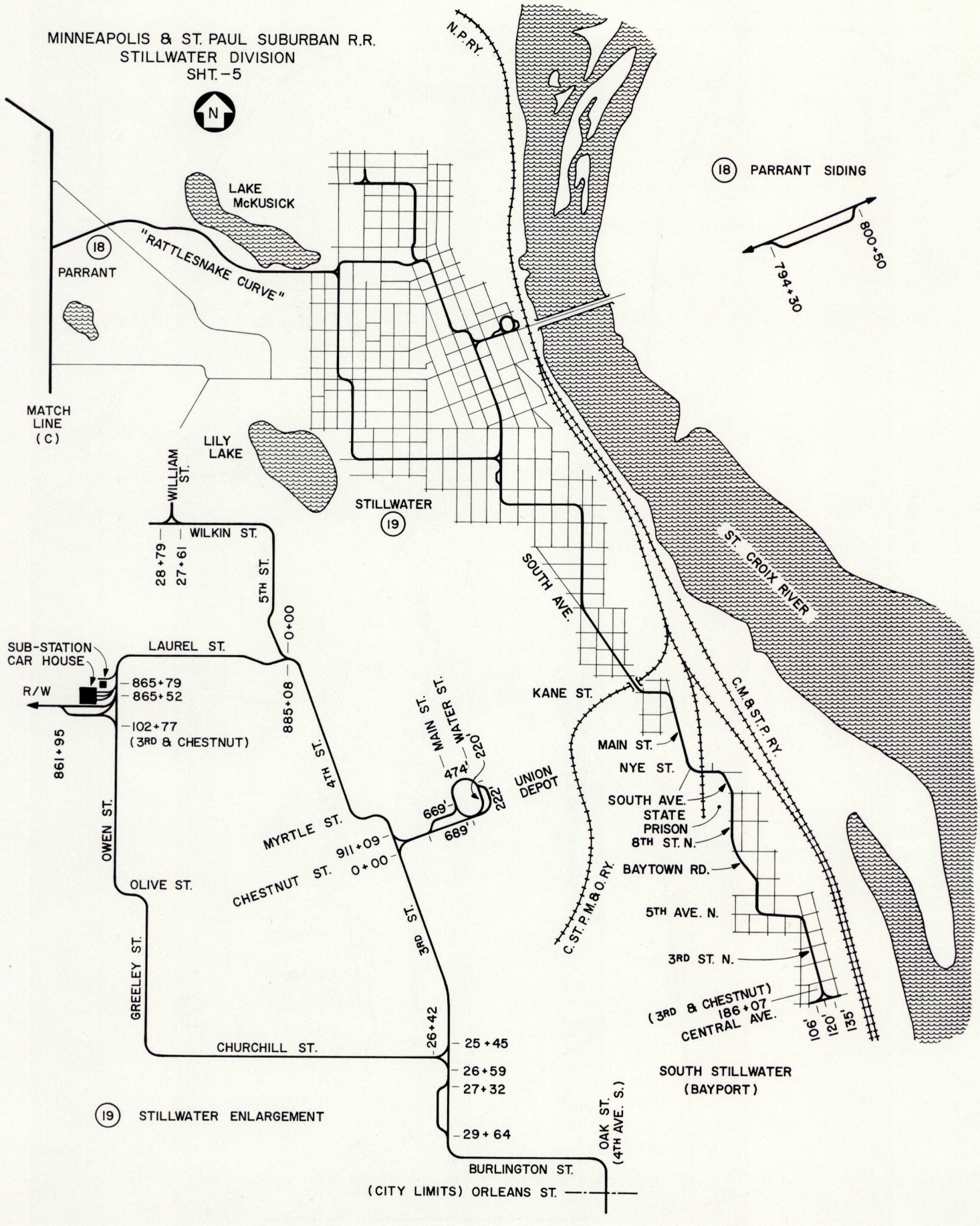

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
STILLWATER DIVISION
SHT. -2
N
WHITE BEAR LAKE
MANITOU ISLAND
VILLAGE OF WHITE BEAR
16
LAKE SHORE
15
ST. PAUL AUTO CLUB
LAKE SHORE SANITARIUM
GOOSE LAKE
N.P.RY.
COTTAGE PARK
14
SCHNEIDER
BELLAIRE AVE.
CHESTER
BIRCHWOOD
GLENVIEW
LAKEWOOD
JAY ST.
WILDWOOD
13
MAHTOMEDI
N.P.RY.
N.P. DEPOT
4°
565+68
564+66
HAMLINE LAKE
FAIRMONT OAKLEIGH
EAST SHORE PARK
LAKEVIEW
FOREST HEIGHTS
12
POWER-HOUSE POND
WILLERNIE
11
SMALL LAKE
10
LONG LAKE
9
(B)
MATCH LINE (A)
16 WHITE BEAR
134'
228+67
6TH ST.
5TH ST.
4TH ST.
3RD ST.
2ND ST.
AVE.
CLARK
BANNING AVE.
15 LAKE SHORE SIDING
184+99
182+54
14 BRIDGE 52' LONG BUILT 1921
AT BELLAIRE 101+15
BELLAIRE SIDING
(EXACT LOCATION UNKNOWN)
287'
12 WILDWOOD ENLARGEMENT
SEE SHT. -3
11 ---- LOCATION OF ORIGINAL LINE
10 LONG LAKE SIDING
420+87
414+66
9 PULLMAN SIDING



BUILDINGS AT WILDWOOD PARK

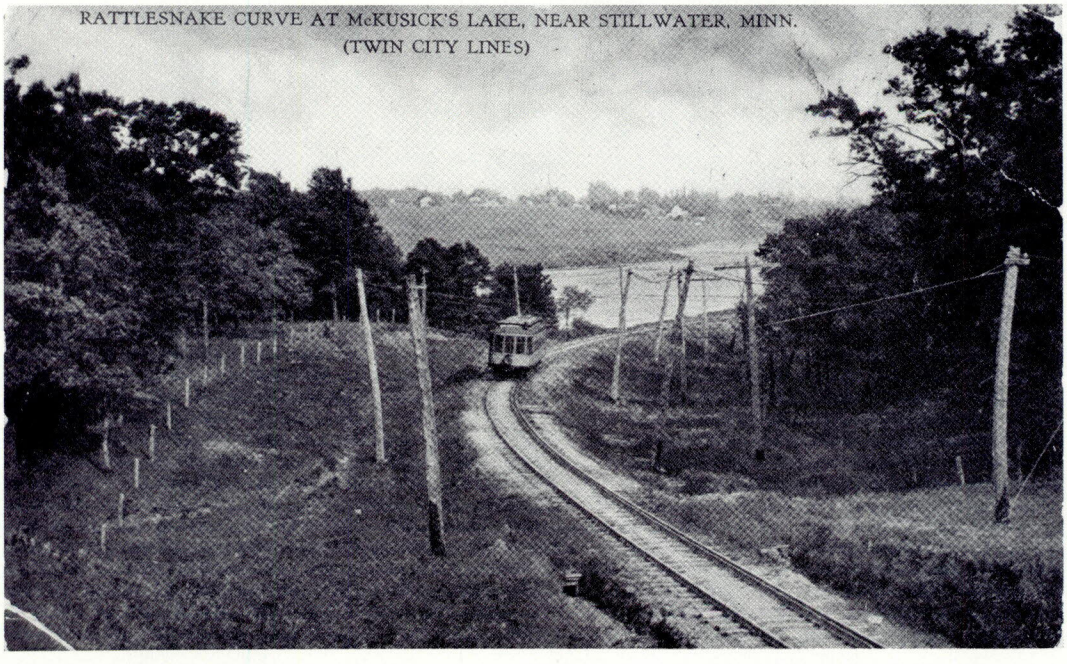
1	PICNIC PAVILION
2	BATH HOUSE
3	MERRY-GO-ROUND
4	KIDDIE AERO
5	ROLLER COASTER
6	CONCESSIONS
7	STAND
8	WATER TANKS
9	GIANT AEROPLANE
10	PUMP HOUSE
11	AMUSEMENTS
12	MYSTERIOUS SENSATION
13	SKEEBALL ALLEY
14	SKOOTER
15	PAVILION
16	BOAT HOUSE
17	LADIES TOILET
18	PUMP HOUSE
19	WAITING ROOM
20	MENS TOILET
21	DISPATCH OFFICE
22	COVERED PLATFORM
23	STAND
24	STAND
25	BOWLING ALLEY
26	ICE HOUSE
27	RESIDENCE
28	DORMITORY
29	WATER TANK
30	DORMITORY

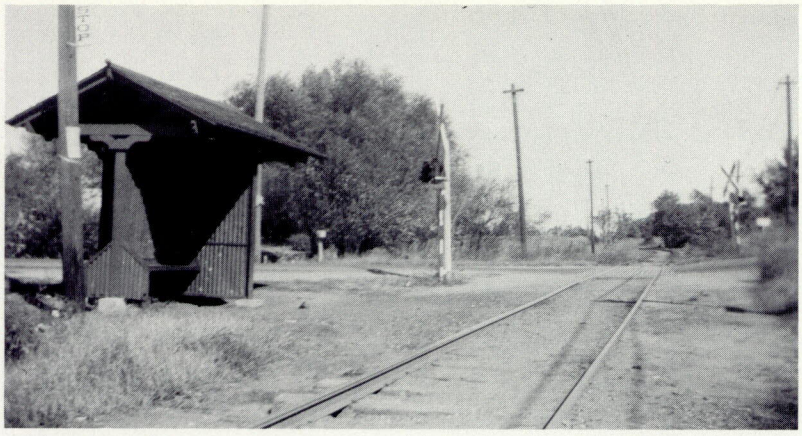

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
STILLWATER DIVISION
SHT. - 4
N
(C)
CURTIN
SOO LINE R.R.
GRANT
17
SUNNY BROOK LAKE
LEIS
ELLIOTT
MASTERMAN
LONG LAKE
MATCH LINE (B)
17 GRANT SIDING
579+14
584+54
585+75
ORIGINAL LENGTH
EXTENDED LENGTH
A EARLIER TRACK VARIATIONS - UPPER WYE
266'
221'
367'
240'
WYE LOCATED HERE CA. 1900
537'
268'
SAND PIT
203'
STEAM STATION
COAL & MATERIAL YARD
B LATER SUB-STATION TRACK ARRANGEMENT
100'
170'
163'
280'
407'
SUB-STATION
C 1938 - 1951

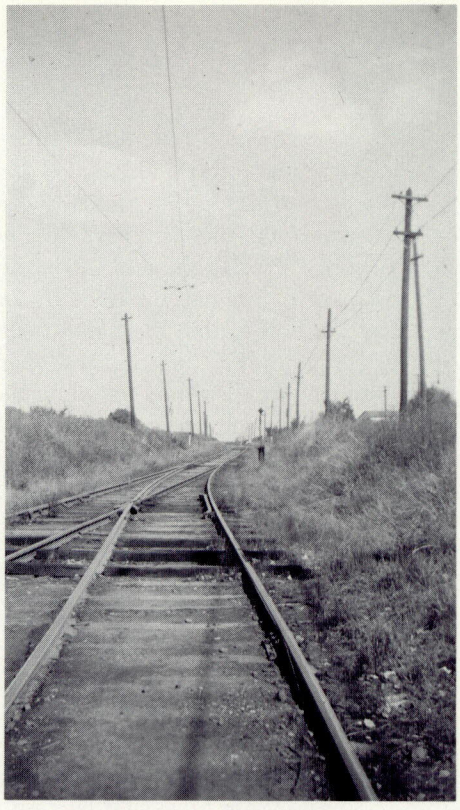

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
STILLWATER DIVISION
SHT. -5
N
N.P.RY.
(18) PARRANT SIDING
800+50
794+30
LAKE McKUSICK
(18) PARRANT
"RATTLESNAKE CURVE"
MATCH LINE (C)
LILY LAKE
WILLIAM ST.
STILLWATER (19)
WILKIN ST.
28+79
27+61
5TH ST.
0+00
SOUTH AVE.
ST. CROIX RIVER
SUB-STATION CAR HOUSE
LAUREL ST.
R/W
865+79
865+52
102+77
(3RD & CHESTNUT)
861+95
885+08
4TH ST.
MAIN ST.
WATER ST.
474'
220'
222'
669'
689'
UNION DEPOT
KANE ST.
C.M.&ST.P.RY.
MAIN ST.
NYE ST.
SOUTH AVE.
STATE PRISON
8TH ST. N.
BAYTOWN RD.
5TH AVE. N.
3RD ST. N.
(3RD & CHESTNUT)
186+07
CENTRAL AVE.
109'
120'
135'
C.ST.P.M.&O.RY.
OWEN ST.
MYRTLE ST.
911+09
CHESTNUT ST.
0+00
OLIVE ST.
3RD ST.
GREELEY ST.
26+42
CHURCHILL ST.
25+45
26+59
27+32
29+64
OAK ST. (4TH AVE. S.)
BURLINGTON ST.
(CITY LIMITS) ORLEANS ST.
SOUTH STILLWATER (BAYPORT)
(19) STILLWATER ENLARGEMENT

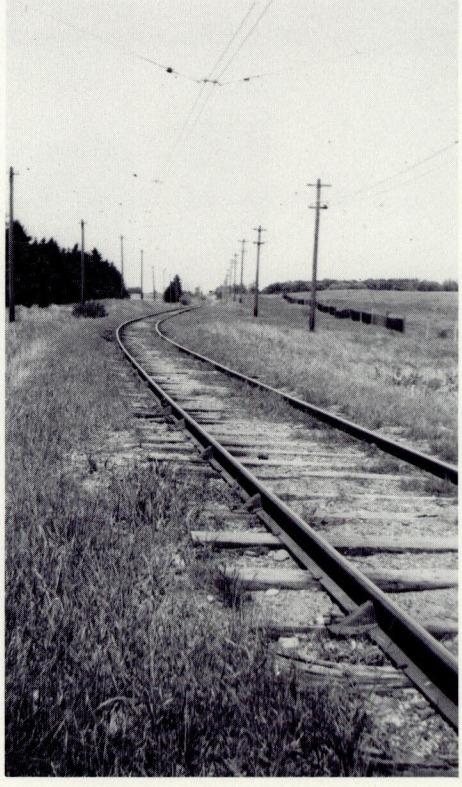
As service and schedule changes were instituted because of increased traffic and changes in traffic patterns, the second track was gradually extended eastward from St. Paul and the passing siding locations re-arranged. Records are sketchy and incomplete on these changes. Mileage points on employee timetables were figured at the location of the telephone booths of the dispatching system and deviations in these measurements exist. The following discussion is based on the best available information. The mileage figures enclosed within parentheses are calculated from the original end of double track at E. 7th St. and Duluth Ave., St. Paul.

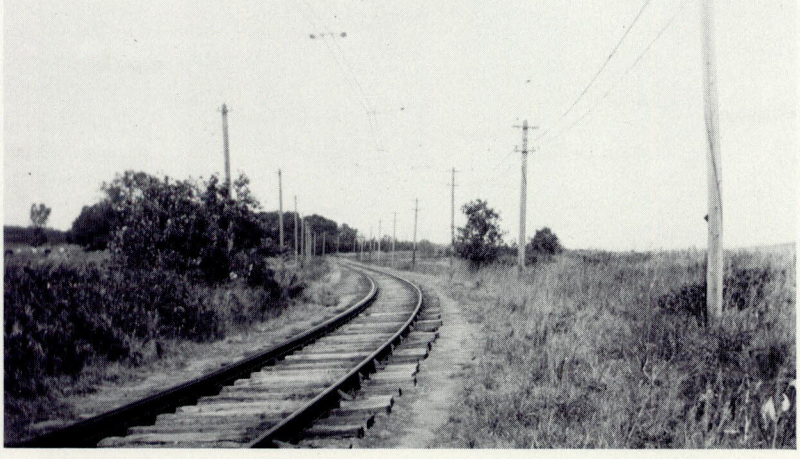
1. A wye was located at Ames Ave. (I. 85) on the east side of the right-of-way for rush hour service to and from the Harvester plant. This was re-located to Autumn Ave. (2.49) (now Ivy Ave.) at the north end of the Maryland Ave. siding effective November 1, 1911. (Ames Ave. was at Hazel Park just south of the C. St. P. M. & O. Ry. tracks.)
2. The Autumn Ave. wye was relocated in 1913 one block south on the Maryland Ave. siding to Hyacinth Ave.
3. The earliest employees' timetable located so far is one effective May, 1913, which provides us with the first complete list of siding locations. These are: Duluth Ave. — end of double track (0.00), Bock St. (now Hazelwood Ave.) siding (0.46), Maryland Ave. siding (2.42), Colby siding (3.76), Chair Factory siding (4.75), Pullman siding (6.55), Wildwood Park siding (9.05), Grant siding (11.01), Owen St. Station siding (16.12), and Stillwater Union Depot loop siding (17.51). Wildwood Park siding to Mahtomedi was 1.79 miles and Wildwood Park siding to White Bear 4.49 miles.
4. By May, 1914, the sidings at Bock St., Chair Factory and Pullman were removed and replaced by sidings built at Kerwin St. (1.61), Soo Line (5.69), Long Lake (7.89) and Parrant (15.10). The right-of-way map indicates the correct name was Parrant's siding; however, all public and employee timetables gave the spelling as Parents siding; it was re-named Goodrich siding July 22, 1920. Lake Shore siding (3.57 miles from Wildwood Park siding, or 0.92 miles from White Bear) was installed on the White Bear branchline.
5. Second track was added on E. 7th St. and the right-of-way from Duluth Ave. (0.00) to Van Dyke Ave. (1.37) between May and October, 1917. (Van Dyke Ave. was one block east of White Bear Ave., on the right-of-way.)
6. Second track was added on the right-of-way from Van Dyke Ave. east and north to Harvester Ave. (1.6? or 1.7?) resulting in the removal of Kerwin St. siding. This work was completed July 29, 1920.
7. Second track was added on the right-of-way from Harvester Ave. to the Maryland Ave. siding, thus making Autumn Ave. (now Ivy Ave.) (2.49) the end of double track, during 1922.
8. During 1924 a crossover was installed 75' east of Duluth Ave. on E. 7th St., completed August 18th. By using the existing crossover of the carhouse trackage, eastbound Stillwater cars could pass Hazel Park local cars on the westbound main track between the two crossovers.
9. The siding at Lake Shore on the White Bear branch line was removed and relocated at Bellaire (2.02 miles from Wildwood Park siding or 2.47 miles from White Bear) at an unknown date subsequent to 1917.
10. A siding was installed at Pennsylvania St. (5.00), North St. Paul, placed in service September 16, 1926. Long Lake siding was then removed, the work being completed October 23, 1926.

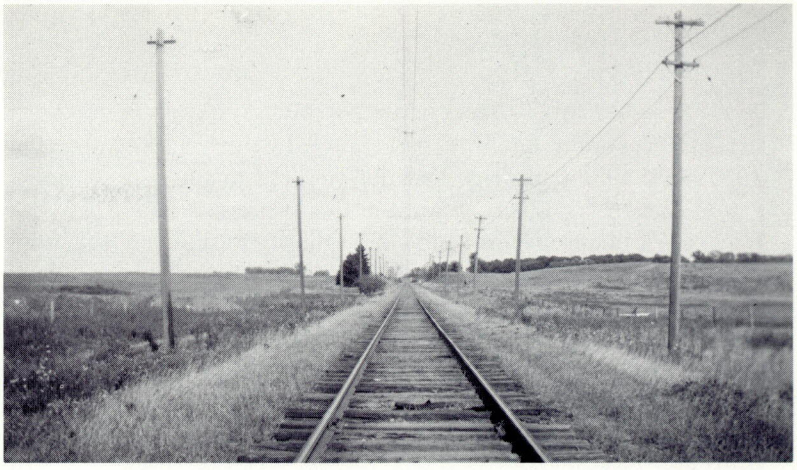


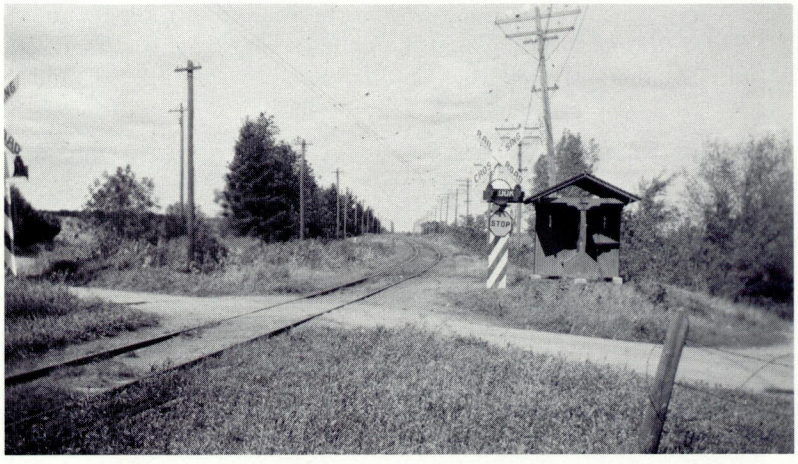


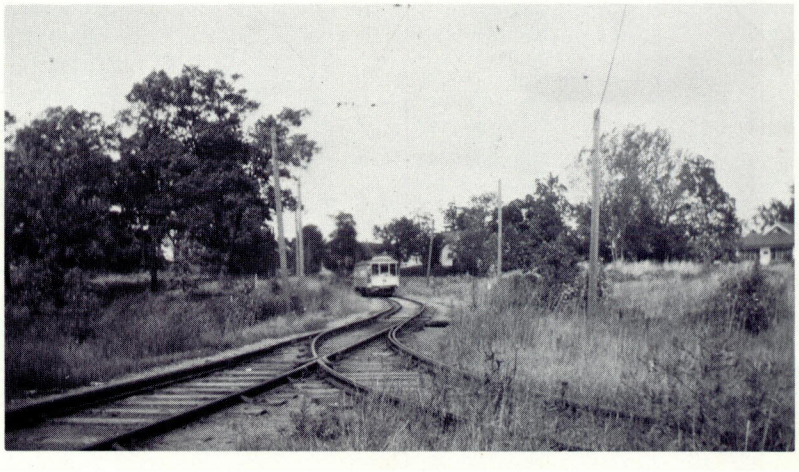












Scenes along the Stillwater Division right-of-way

Facing Page

Left, top to bottom:

Looking north from Larpenteur Ave., the St. Paul city limits.

Entering Colby siding, eastbound.

Eastbound at the Henry St. siding and wye, North St. Paul.

Leaving the site of Pullman siding eastbound, heading north.

(All photographs William J. Olsen)

Above right: Looking north from the end of double track at Autumn (Ivy) Ave. (William J. Olsen)

Below right: The second curve north of old Pullman siding, eastbound. (Edwin H. Nelson)

This Page

Above: East end of the former second track at Wildwood (Willernie) looking east, August, 1950, as cut back to a short passing siding. (Edwin H. Nelson)

Right, top to bottom:

Eastbound, heading northeasterly toward Long Lake (on the right).

Eastbound at Long Lake station. Note the Adlake crossing signs.

Eastbound between Long Lake siding and Wildwood.

The upper wye at Wildwood (Willernie) looking north on the Mahtomedi branch line.

(All photographs William J. Olsen)

Gross revenue declined substantially during the 1920's. By 1931 patronage had deteriorated to such an extent that the company requested the Minnesota Railroad & Warehouse Commission for authority to abandon the portions from Wildwood to White Bear and Wildwood to Stillwater. Permission to abandon was received and the final runs were made on the following dates:

Wildwood to Stillwater:	August 11, 1932
Wildwood to White Bear	September 10, 1932
Stillwater local lines:	September 10, 1932

A wye was built at Henry St., North St. Paul, during 1934. Either at this time or at an unknown later date, the siding at Pennsylvania St. was removed.

During 1938 Wildwood Park was closed, the buildings demolished and the property sold. As a result the long Wildwood Park siding was drastically shortened, the car storage tracks off the upper wye removed, and all tracks in the substation yard removed.

In 1944 a siding was installed at the Henry St. wye in North St. Paul. Colby siding and Soo Line siding were taken out of service but the tracks were not removed until 1948. (The official date for removal of Soo Line siding was January 22, 1948.)

On November 3, 1951, the track from the wye at Hyacinth Ave., St.Paul, to Mahtomedi, 8.35 miles, was abandoned. Then on May 17, 1952, the remainder, from E. 7th St. and Duluth Ave. to Hyacinth Ave. on E. 7th St. and the right-of-way, was abandoned.

The wye at Mahtomedi, looking south, with a northbound car on the main track. (Edwin H. Nelson)

Looking south from the end of double track at Ivy Ave., October 11, 1951. The Hyacinth Ave. wye is to the left center, the north switch being adjacent to car 1218. (Edwin H. Nelson)

LAKE MINNETONKA DIVISION

With the era of extravagance ended at Lake Minnetonka and the lake area becoming domesticated, proposals were made to construct an electric railway from Minneapolis to Lake Minnetonka. One such scheme introduced in 1896 contemplated building along the highway on W. Lake St. and Superior Ave. The M. & St. L. Ry. and the G. N. Ry. each suggested electrifying their existing routes, perhaps by third rail. The G. N. Ry. had built a line during 1886 from Hopkins Jct. via Excelsior and St. Bonifacius to Hutchinson which used sections of the Minneapolis, Lyndale & Minnetonka Ry. roadbed between Hopkins and Excelsior; in 1900 the Spring Park branch line was extended through Mound to St. Bonifacius, and in 1902 that section of the old line from Hopkins Jct. to St. Bonifacius was abandoned.

TCRT management saw in the departure of the wealthy tourists the opportunity to develop the lake area for recreational and sightseeing activities for the working and middle class population and provide transportation for the residents who lived in the lake communities, summer cottages and year-around homes on the lake. In 1904 the decision was made to build the line from Lake Harriet to Excelsior. Early in 1905 the Minneapolis & St. Paul Suburban Ry. obtained from the villages of Hopkins, West Minneapolis and Excelsior the necessary ordinances authorizing it to build in and through those communities. Much of the old right-of-way of the Minneapolis, Lyndale & Minnetonka Ry. was re-acquired as well as necessary sections of the abandoned G. N. Ry. line.

Actual construction of a 14 mile single track line from the Lake Harriet loop, Minneapolis, to Division St., Excelsior, began in the spring of 1905. An old single truck, closed passenger motor car pulling four or five flat trailers was used in hauling ties and the 5" 80 lb. T rail which was used throughout. Overhead construction consisted of 35 ft. cedar poles for span wire suspension with 2/0 round trolley wire erected 20 ft. above the top of the rail. A curved viaduct was built in Hopkins to cross the M. & St. L. Ry. and C. M. & St. P. Ry. main line tracks. For about one-half the distance the track was laid on the abandoned M. L. & M. Ry. grade. Practically all of the old curves were re-surveyed and alignments adjusted to facilitate high-speed operation; the grade was also cut down in some places and filled at other points to secure a more uniform level profile. Several heavy cuts and fills were required at the western end of the line, some fills being about 50 ft. high and 28 ft. across at the top, while cuts were 32 ft. wide at the bottom. Substations were built at Central Ave., Hopkins, and Division St., Excelsior. The completed single track line was opened for service on September 30, 1905.

On October 19, 1905, the single track branch line of the C. M. & St. P. Ry. from Hopkins to Deephaven, originally built in 1887, was acquired by lease. The single track of the electric line was at the same grade as the single track railroad line, but parallel to it on the south for a distance of 1.107 miles to the west.

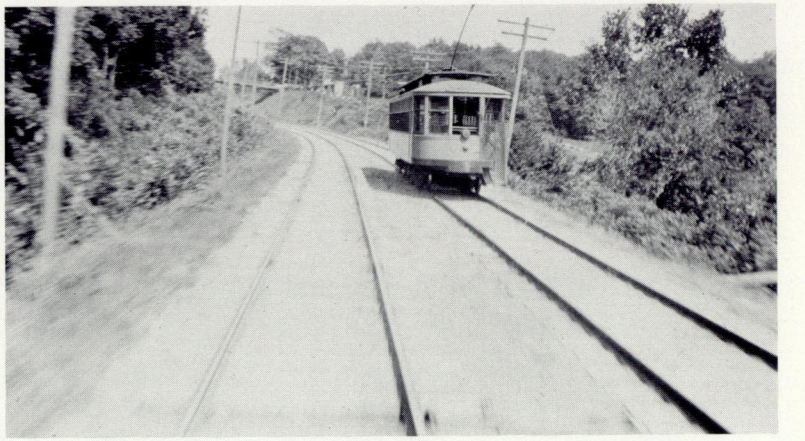
Construction resumed in earnest early in 1906 and continued throughout the summer. A single track branch line into Hopkins was built on 9th Ave. from the right-of-way to a wye just north of Excelsior Ave., completed June 16th. The C. M. & St. P. Ry. branch line to Deephaven was connected to the electric railway track at a point named Deephaven Junction, electrified, then opened for service June 10, 1906. (The M. & St. L. Ry. grade crossing at Williston Park on this branch line was protected on both tracks in each direction by single blade, two indication, lower quadrant semaphores manually operated from a tower at the crossing.) In Excelsior bridges were constructed over Division St., the M. & St. L. Ry. tracks, and 2nd St.; and the track extended to a wye at 2nd St. and Water St. in Excelsior. As the line was intended to be double track the entire length, the second main track was also built during 1906. The original track became the westbound main and the new track built in 1906 was the eastbound main. A second curved viaduct was built adjacent to the first at Hopkins to accommodate the second main track. The C. M. & St. P. Ry. track from Hopkins to Deephaven Jct. was retained temporarily for delivery of track and overhead materials and then removed. Apparently some re-alignment was done in this area for the Electric Railway Journal reported that until June, 1906, the single track electric line was at the railroad grade but a short distance north of the "new" double track route. Electric arc lights were fastened to the overhead span wire poles at 400 ft. intervals from 34th St., Minneapolis, to Excelsior. The purpose was to light up the right-of-way at night as a scenic attraction, and to allow high-speed operation with utmost safety. The second main track from Lake Harriet loop, Minneapolis, to 2nd and Water Streets, Excelsior, was placed in service October 10, 1906.

According to subsequent valuation studies, during 1907 the track was extended westward from Excelsior to Manitou Junction on the M. & St. L. Ry., where the latter's branch line to Tonka Bay left the main line. TCRT promotional brochures of 1907 depict a loop near Birch Bluff at the end of this extension.

However on October 1, 1907, the M. & St. L. Ry.'s Tonka Bay branch line was leased to the M. & St. P. Suburban Ry., connected to the existing track and electrified early the following year. A substantial boat dock was constructed at Wildhurst (to reduce travel time to Upper Lake points via company express boats by 20 minutes each way) and a long loop track built off the branch line to the dock. All of this work was completed and the branch line opened for traffic on May 9th or 19th, 1908. This then was the extent of track construction on the Lake Minnetonka Division.

Above: An eastbound car on the Lake Minnetonka line passing over the Division St. underpass, Excelsior. The Excelsior substation is to the left of the tracks. This photograph was taken about 1910. (Lake Minnetonka historical collection of S. D. Dimond)

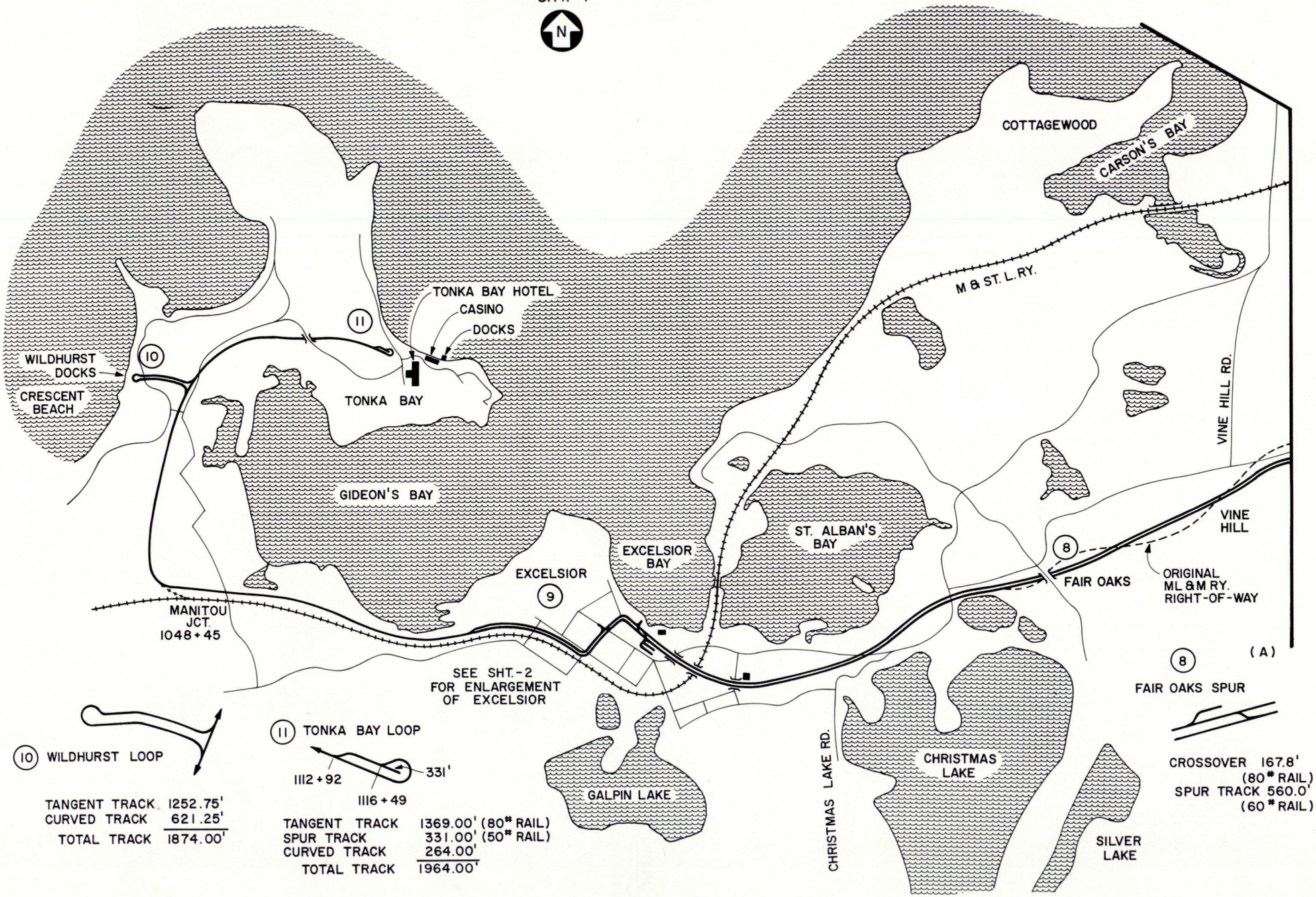
Below: Westbound train passing through rolling woodland on the main line of the Lake Minnetonka Division, 1923. (Joe Hutchinson collection)



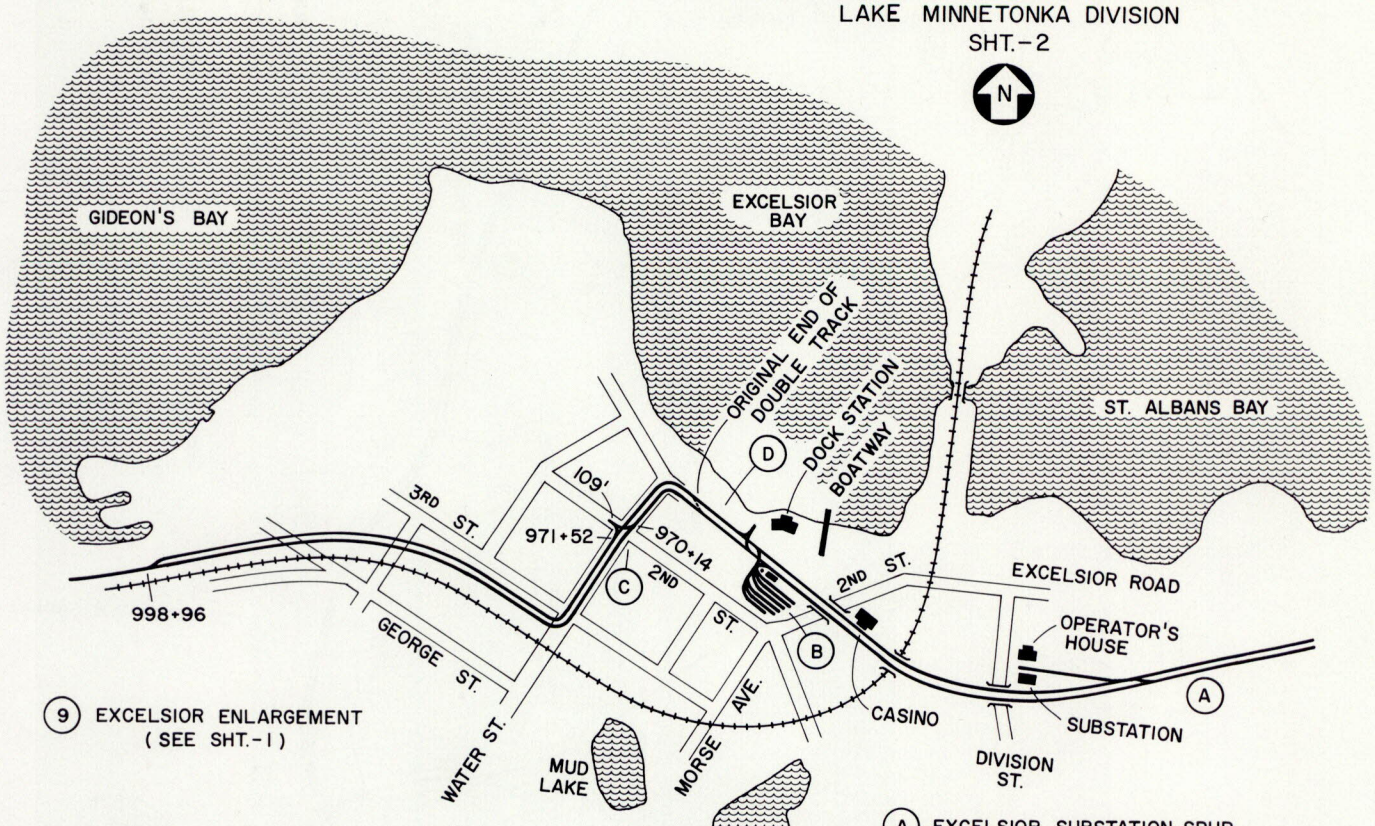
Above: Westbound train on the main line approaching the Fair Oaks bridge, 1923. (Joe Hutchinson collection)

Below: A scene along the Tonka Bay branch line. (Lake Minnetonka historical collection of S. D. Dimond)

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
LAKE MINNETONKA DIVISION
SHT. - 1



MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
LAKE MINNETONKA DIVISION
SHT.-2



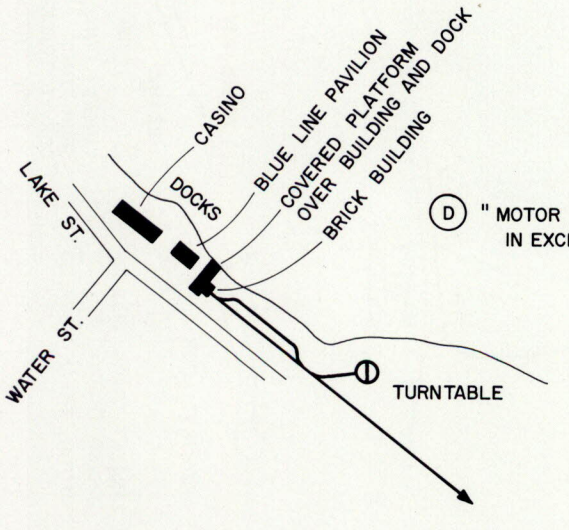
(9) EXCELSIOR ENLARGEMENT
(SEE SHT.-1)

STATION	LOCATION
944+57	DIVISION ST. BRIDGE
948+59	BRIDGE OVER HIGHWAY BUILT 1923
950+70	BRIDGE OVER M & ST L RY.
955+54	2ND ST. BRIDGE
958+--	CONCRETE UNDERGROUND PASSAGEWAY 33.5' LONG AT DOCK STATION - WITH STAIRWAY TO WAITING STATION
959+77 TO 977+71	TRACK THROUGH EXCELSIOR

(A) EXCELSIOR SUBSTATION SPUR
CROSSOVER 167.8' (80# RAIL)
SPUR 800.0' (60# RAIL)

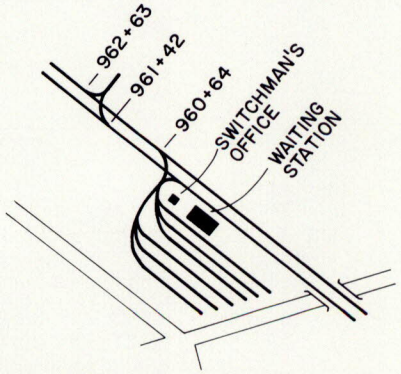
(C) WYE WAS ORIGINALLY BUILT ON EAST OF STREET

PROBABLY MOVED TO WEST SIDE OF STREET WHEN DOUBLE TRACK WAS EXTENDED

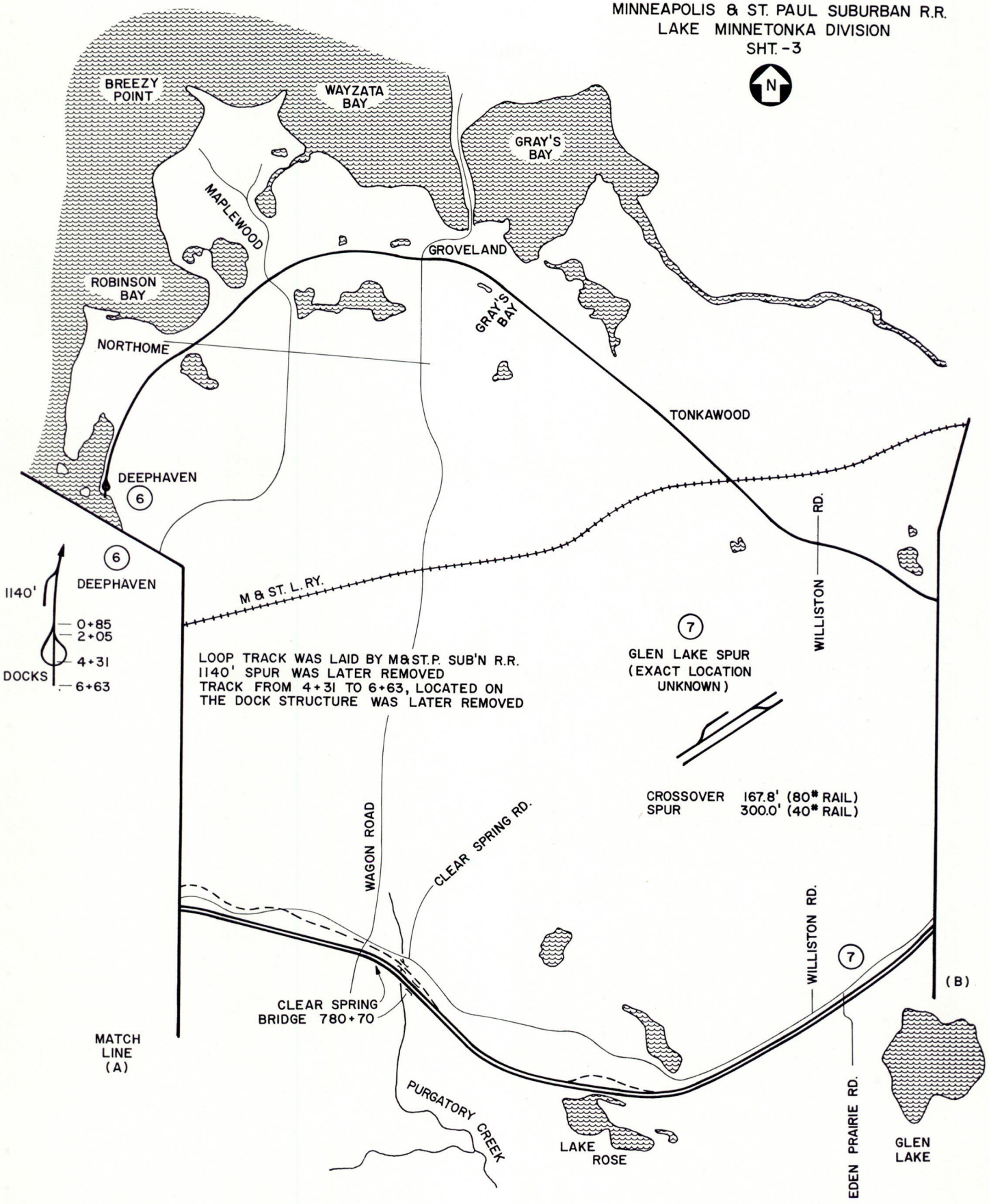


(D) " MOTOR LINE " IN EXCELSIOR

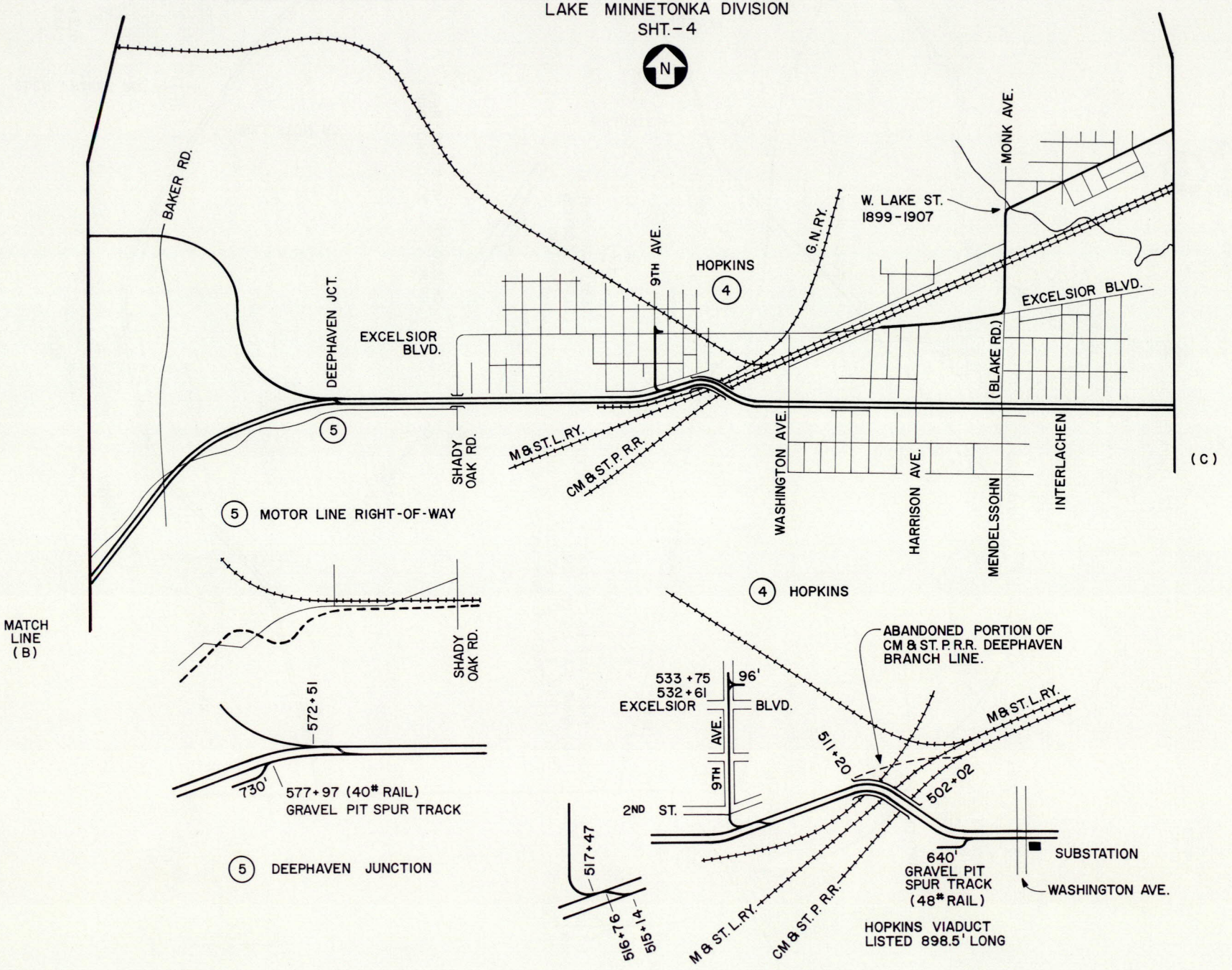
(B) EXCELSIOR DOCK STATION CAR STORAGE YARD

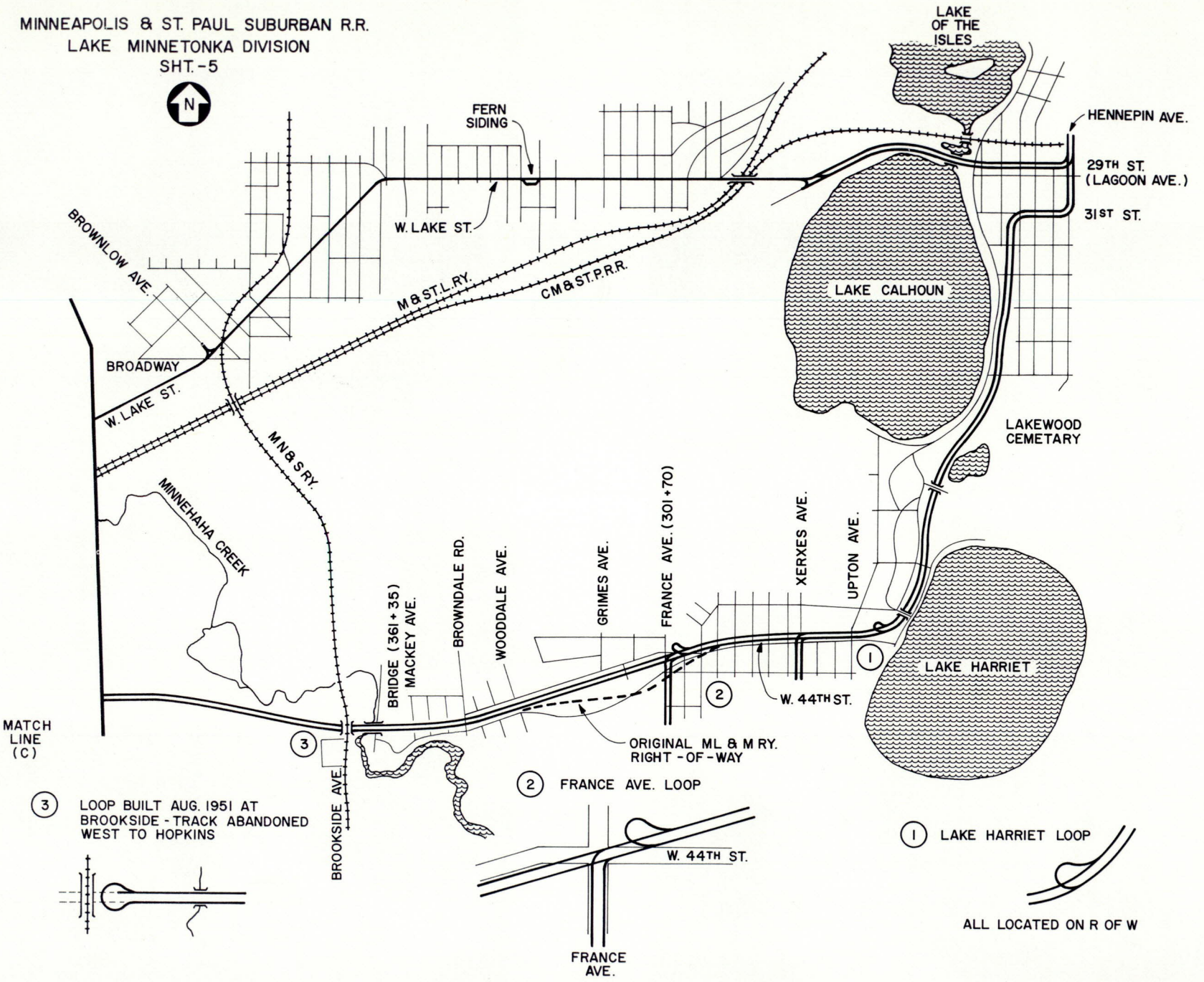


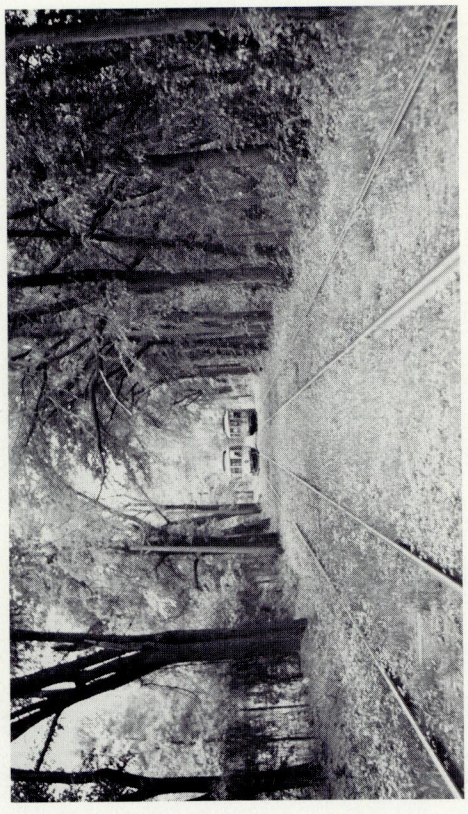
TANGENT TRACK	1372.9' (50# RAIL)
SPECIAL TRACK	1135.9'
TOTAL TRACK	2508.8'

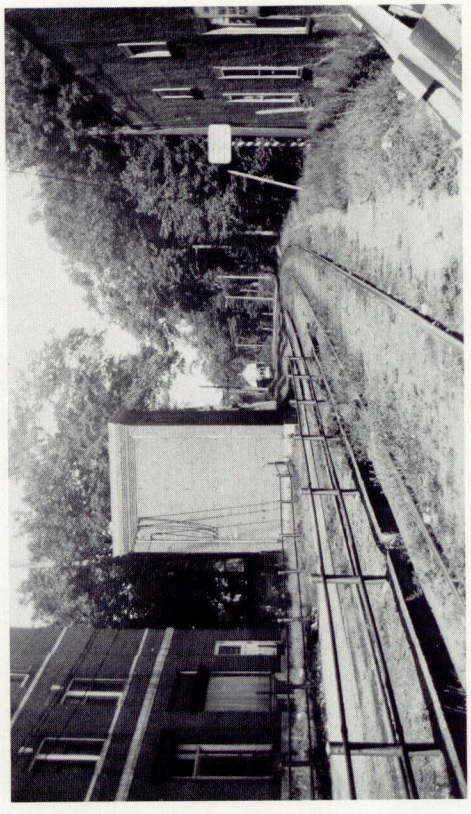

MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
LAKE MINNETONKA DIVISION
SHT. -3
N
BREEZY POINT
WAYZATA BAY
GRAY'S BAY
MAPLEWOOD
GROVELAND
ROBINSON BAY
GRAY'S BAY
NORTHOME
TONKAWOOD
DEEPHAVEN
6
6
DEEPHAVEN
1140'
0+85
2+05
4+31
DOCKS
6+63
M & ST. L. RY.
WILLISTON RD.
LOOP TRACK WAS LAID BY M&ST.P. SUB'N R.R.
1140' SPUR WAS LATER REMOVED
TRACK FROM 4+31 TO 6+63, LOCATED ON
THE DOCK STRUCTURE WAS LATER REMOVED
7
GLEN LAKE SPUR
(EXACT LOCATION
UNKNOWN)
CROSSOVER 167.8' (80# RAIL)
SPUR 300.0' (40# RAIL)
WAGON ROAD
CLEAR SPRING RD.
WILLISTON RD.
7
(B)
CLEAR SPRING
BRIDGE 780+70
MATCH
LINE
(A)
PURGATORY CREEK
LAKE
ROSE
EDEN PRAIRIE RD.
GLEN
LAKE

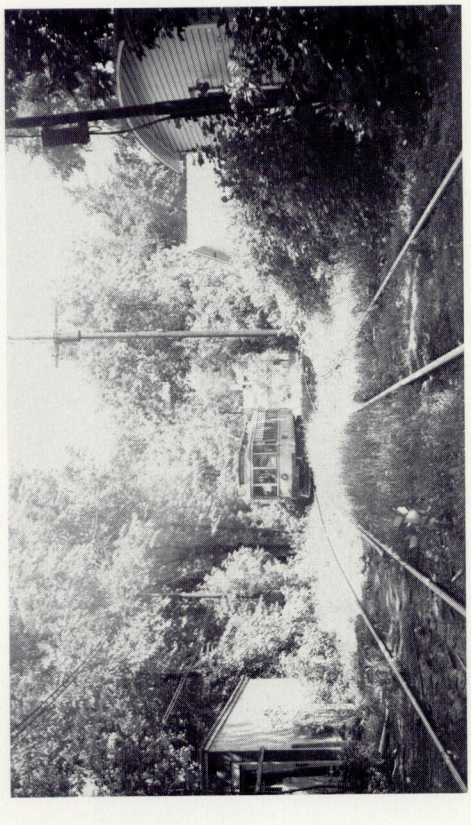
MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
LAKE MINNETONKA DIVISION
SHT.-4

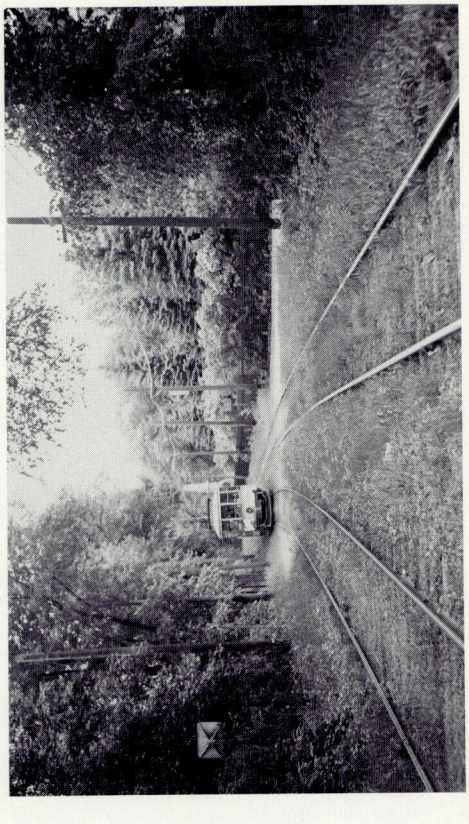



MINNEAPOLIS & ST. PAUL SUBURBAN R.R.
LAKE MINNETONKA DIVISION
SHT.-5
N
LAKE OF THE ISLES
HENNEPIN AVE.
29TH ST. (LAGOON AVE.)
31ST ST.
FERN SIDING
W. LAKE ST.
BROWNLOW AVE.
M & ST.L.RY.
CM & ST.P.R.R.
LAKE CALHOUN
BROADWAY
W. LAKE ST.
MN & S RY.
LAKEWOOD CEMETARY
MINNEHAHA CREEK
BRIDGE (361+35)
MACKEY AVE.
BROWNDALE RD.
WOODDALE AVE.
GRIMES AVE.
FRANCE AVE. (301+70)
XERXES AVE.
UPTON AVE.
LAKE HARRIET
W. 44TH ST.
ORIGINAL ML & M RY. RIGHT-OF-WAY
MATCH LINE (C)
BROOKSIDE AVE.
3 LOOP BUILT AUG. 1951 AT BROOKSIDE - TRACK ABANDONED WEST TO HOPKINS
2 FRANCE AVE. LOOP
W. 44TH ST.
FRANCE AVE.
1 LAKE HARRIET LOOP
ALL LOCATED ON R OF W









Gross revenue of the combined Stillwater and Lake Minnetonka Divisions decreased from $694,892 in 1921 to $199,694 in 1931. The company requested authority from the Minnesota Railroad & Warehouse Commission during 1931 to abandon the following portions: (1) Hopkins to Excelsior, 8.60 miles (the Minnesota Highway Department wanted the right-of-way from Willow Point to Excelsior), (2) Excelsior to Tonka Bay, 3.13 miles, and (3) Deephaven Jct. to Deephaven, 6.16 miles. The portion from Minneapolis to Hopkins, 4.56 miles, was to be retained. Permission was received to abandon the requested portions and the final runs were made August 11, 1932.

On August 4, 1951, that portion of the line from Brookside to Hopkins, 3.21 miles, was abandoned. A loop was built on the right-of-way just east of the M. N. & S. Ry. bridge. The Harriet right-of-way from 31st St. and Irving Ave., Minneapolis, to the Brookside loop was abandoned June 19, 1954, as part of the last streetcar line in Minneapolis, and the last of all Twin City Rapid Transit Co. streetcar operations.

Scenes along the Harriet right-of-way, Minneapolis.

Facing page

Left, top to bottom:

"Oak-Harriet" car 1848 southbound at 31st St. and the right-of-way, June 16, 1954.

"Oak-Harriet" car 1546 southbound at the Lakewood Cemetary stop, June 2, 1954.

Car 1307 southbound approaching the 39th-40th St. (Cottage City) stop, June 2, 1954.

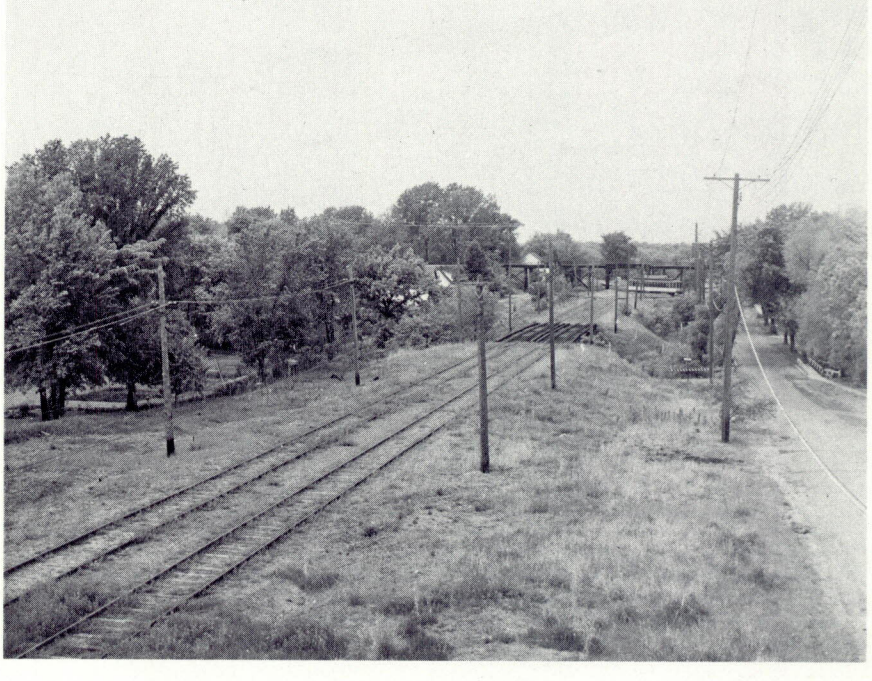
(All photographs Edwin H. Nelson)

Right, top to bottom:

Looking north toward 34th St. from 36th St., June 2, 1954; "Oak-Harriet" car 1311 is southbound. (Edwin H. Nelson)

"Oak-Harriet" cars 1546 (southbound) and 1306 (northbound) passing along Lakewood Cemetary (to the left), June 2, 1954. (Edwin H. Nelson)

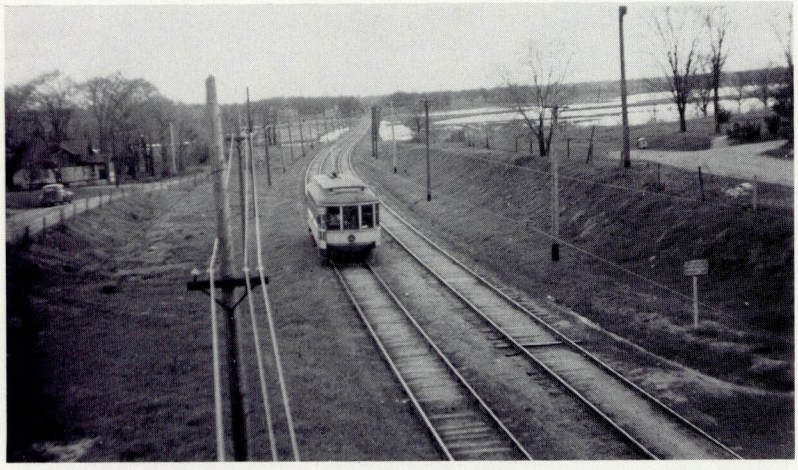
Looking west from Upton Ave., with the Harriet Terminal House on the left. (William J. Olsen)

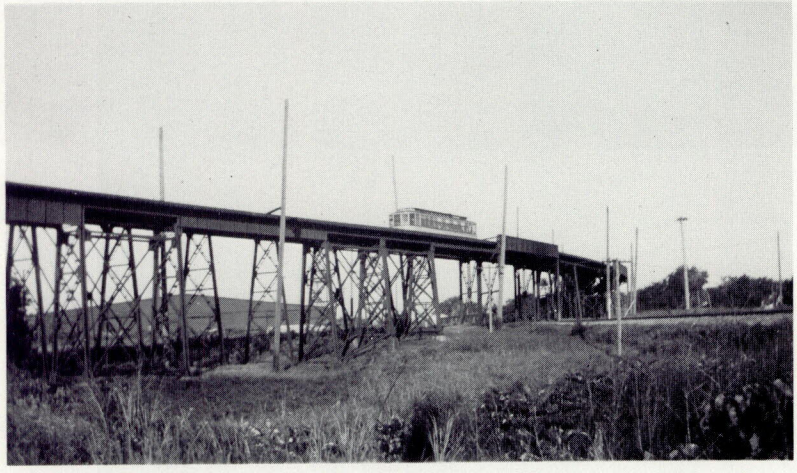


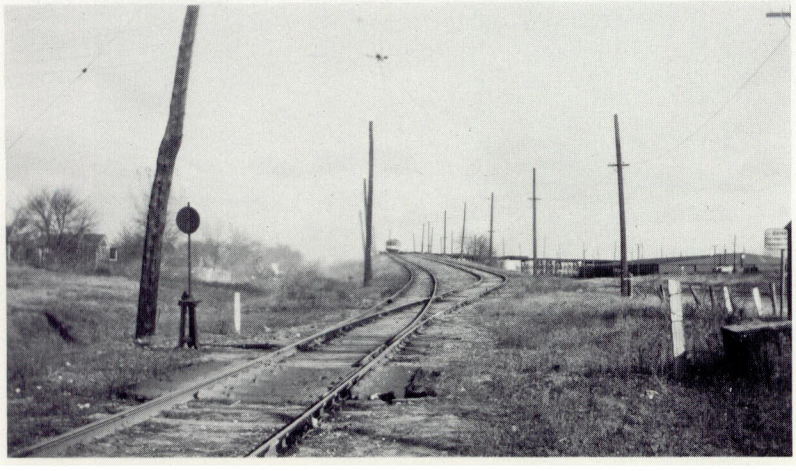
This Page

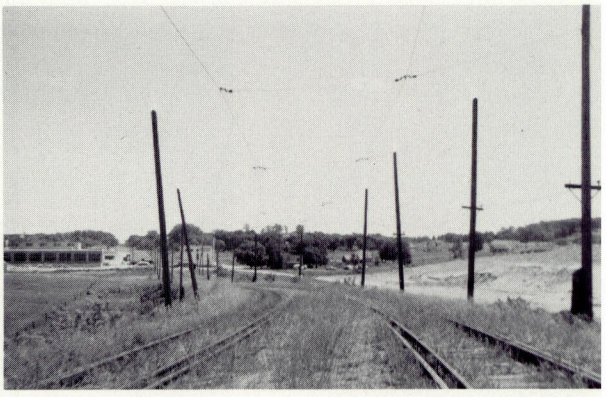
Above: Looking north from the William Berry Road bridge at the 39th-40th St. stop. (Russell L. Olson)

Below: Looking west from Vernon Ave. and 44th St., from the Highway 100 bridge, in 1954. A car can be seen on the Brookside loop in the distance. (S. D. Dimond)









Left, top to bottom:

Looking west from France Ave., 1946. (Fred G. Howarth)

Looking west across the marshlands with Meadowbrook golf course on the right. (James Foster collection)

An eastbound car on the Hopkins viaduct. (William J. Olsen)

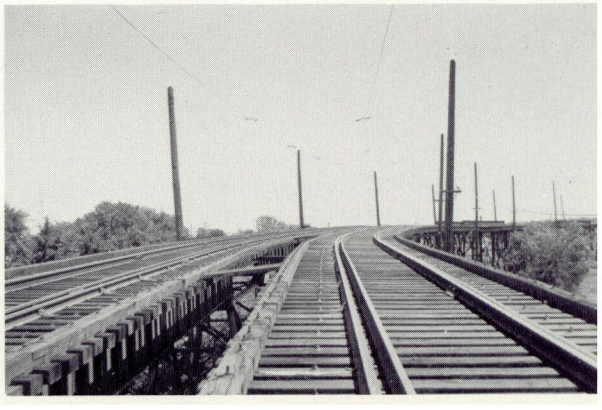
9th Ave., Hopkins, looking east toward the Hopkins viaduct, October 20, 1946. The former main line continued directly west with a cross-over between the main tracks at the approximate location of the end of the double track in this photograph. (Fred G. Howarth)

Right, top to bottom:

Looking west from a point near Blake station, 1951. (Russell L. Olson)

The west approach to the Hopkins viaduct, 1951, looking east toward the former Hopkins substation (the white building to the right of the tracks in the center of the photograph). (Russell L. Olson)

On the Hopkins viaduct, looking east, in 1951. (Russell L. Olson)



Twin City Rapid Transit Co.

Track Mileage Records

Year Ending December 31	Single Track	Double Track	Special Track	Total Track
1902	38.12	98.29	17.85	252.55
1903	38.57	97.53	18.98	252.61
1904	41.93	102.19	18.30	264.61
1905	53.30	121.08	21.80	317.26
1906	58.82	134.85	25.89	354.41
1907	58.11	142.29	21.18	363.87
1908	60.37	143.42	21.18	368.39
1909	59.01	148.70	20.97	377.38
1910	58.48	149.70	25.55	383.43
1911	57.89	153.90	24.45	390.14
1912	62.83	157.05	25.00	401.92
1913	62.89	161.09	27.31	412.38
1914	65.62	170.05	31.00	436.72
1915	66.76	171.22	31.26	440.46
1916	67.88	172.75	31.40	444.78

Year Ending December 31	First Main Track	Second Main Track	Carhouse & Storage Track	Total Track
1917	242.98	176.68	31.72	451.38
1918	243.03	176.80	31.67	451.50
1919	243.07	177.40	32.18	452.65
1920	249.79	184.82	32.25	466.86
1921	252.96	186.29	32.32	471.57
1922	254.01	188.38	32.63	475.02
1923	263.12	195.56	32.66	491.34
1924	264.04	197.77	32.64	494.45
1925	266.11	200.18	32.83	499.12

Year Ending December 31	Total Track	Year Ending December 31	Total Track
1926	504.53	1940	446.30
1927	511.80	1941	445.26
1928	516.25	1942	444.23
1929	519.99	1943	444.26
1930	522.49	1944	444.38
1931	523.68	1945	444.04
1932	476.64	1946	443.87
1933	475.05	1947	440.84
1934	473.53	1948	424.53
1935	472.97	1949	424.31
1936	472.87	1950	409.99
1937	472.62	1951	392.11
1938	458.85	1952	270.49
1939	453.32		

3. POWER GENERATION AND DISTRIBUTION

The Early Years

The generating machinery for the first experimental electric line in Minneapolis was installed on a temporary basis in Pratt's Machine Shop at 5th Ave. So. and 1st St. So. and consisted of: three compound wound generators of 80 h.p. each; one Russell & Co. (Massillon, O.) 250 h.p. engine; and one Hazelton "Porcupine" boiler.

(Cappelen's 1916 valuation listed only two Thomson-Houston D-62 generators.) This plant was used during 1889 and 1890 until Power Station #1 was completed.

For the first electric line in St. Paul, three compound wound generators of 80 h.p. each were installed in the electric light plant of the St. Paul Gas Light Co.

Once electrification of the horsecar systems in both cities had been approved, work began on the construction of a major power station in each city.

In Minneapolis, Power Station #1, also referred to as the Main Central Powerhouse, was located in a brick, three story, 180' x 199' addition to the existing carhouse-office building at 3rd Ave. No. and 2nd St. No., completed in 1890; the addition had been intended as the powerhouse of the proposed cable system. A tunnel was constructed under 3rd Ave. N. and the railroad tracks to the Mississippi River to insure an ample water supply in case of water main breakage or failure of the city water supply. This tunnel was of brick construction, 8' square by 1500' long. Generating machinery consisted of: two Allis triple expansion, condensing Corliss engines of 1,250 h.p. each; one Allis single cylinder, condensing Corliss engine of 600 h.p.; two Stirling boilers (160 p.s.i.) rated at 287 h.p. each; five Babcock & Wilcox boilers (crude oil fired) rated at 272 h.p. each; seventeen Edison #60 bi-polar dynamos rated at 175 KW, 225 h.p., 500 volts D.C. each; and one 100 arc light machine.

The engines were connected to the main line shaft with 55" wide three-ply leather belts. According to Cappelen's 1916 valuation the generators consisted of: two of 150 KW, two of 200 h.p., four of 175 h.p., seven of 150 KW, one of 175 KW, two of 90 KW, one of 100 KW, and one of 150 KW, with a total capacity of 2955 KW.

Underground conduit and cable was installed during 1890 on 3rd Ave. N., Washington Ave. So., and 1st Ave. So. which was removed about 1898.

The Minneapolis St. Ry. general office and horsecar barn at 3rd Ave. N. and 2nd St. N. Additions for the powerhouse at the front and rear are noticeable due to the lighter color of the brick. (Robert Bowes collection)

Additions to the Original System

The purchase of the St. Paul & Suburban Ry. Co. by TCRT's Minneapolis & St. Paul Suburban Ry. in 1899 included the steam powerhouse at North St. Paul. The extension of the line from Wildwood to Stillwater during 1899 required additional power capacity so a 75' x 130' steam powerhouse (coal fired) was constructed at Wildwood along with an artesian well 569 ft. deep. A substation containing two rotary converters was built at Owen St., Stillwater, adjacent to the carhouse, with a transmission line running from the Wildwood powerhouse to the substation. Coal for the powerhouse was hauled from a connection with the Northern Pacific Ry. at Mahtomedi over the streetcar line to Wildwood.

The Selby Ave. powerhouse in St. Paul used for the operation of the Selby Ave. cable-car line was not needed for cable operations after the line was electrified in 1898. A company bulletin states that the powerhouse machinery was rebuilt during 1902 and placed back in service December 17, 1902, indicating that the powerhouse had sometime previously been converted to generating electricity.

The Main Steam Station

It had been learned that the Lower Dam Water Power Station could not be relied upon for an uninterrupted supply of power, and that a large steam station with an adequate reserve capacity was necessary. This led to the design and construction of a new, comprehensive generating plant on land adjacent to the Lower Dam Water Power Station located at 6th Ave. S.E. and the Mississippi River. Design consultants were Sargent & Lundy, Chicago, and F.S. Pearson. Original plans called for the use of 3450 volt, three phase A.C. as the transmission voltage so that the plant could operate in parallel with the Lower Dam Water Power Station; the basic power unit was to consist of one 3500 KW, three phase, General Electric generator direct connected to one Allis-Chalmers vertical compound condensing Reynolds-Corliss engine (the latter had a 46" x 94" cylinder, 60" stroke, and operated at 75 r.p.m.). The building was to be designed to contain six units of this size plus allowing for indefinite expansion. Construction started during 1902 on the building, 156' x 255' x 86' high, consisting of a brick superstructure on a heavy limestone foundation. Six Babcock & Wilcox 550 h.p. boilers were ordered equipped with coils for superheating steam.

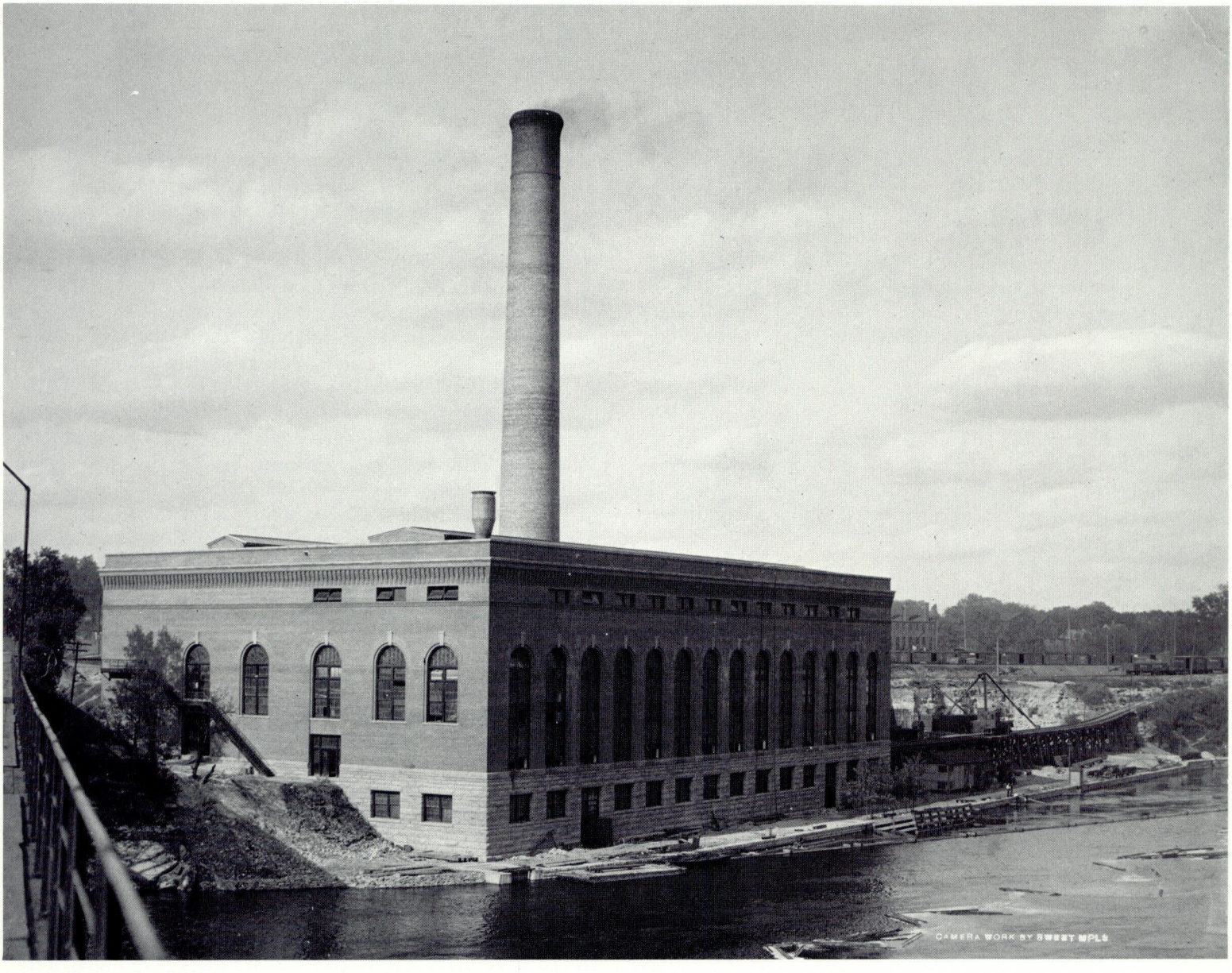
To provide additional capacity pending completion of the Main Steam Station, a temporary extension was made at Power Station #1 (Main Central Powerhouse) in Minneapolis. This work consisted of adding the following equipment: four Babcock & Wilcox (556 h.p. each) boilers; one Allis compound Corliss engine; three rotary converters (600 KW each) belted and driven as generators; and one Buckeye tandem compound engine.

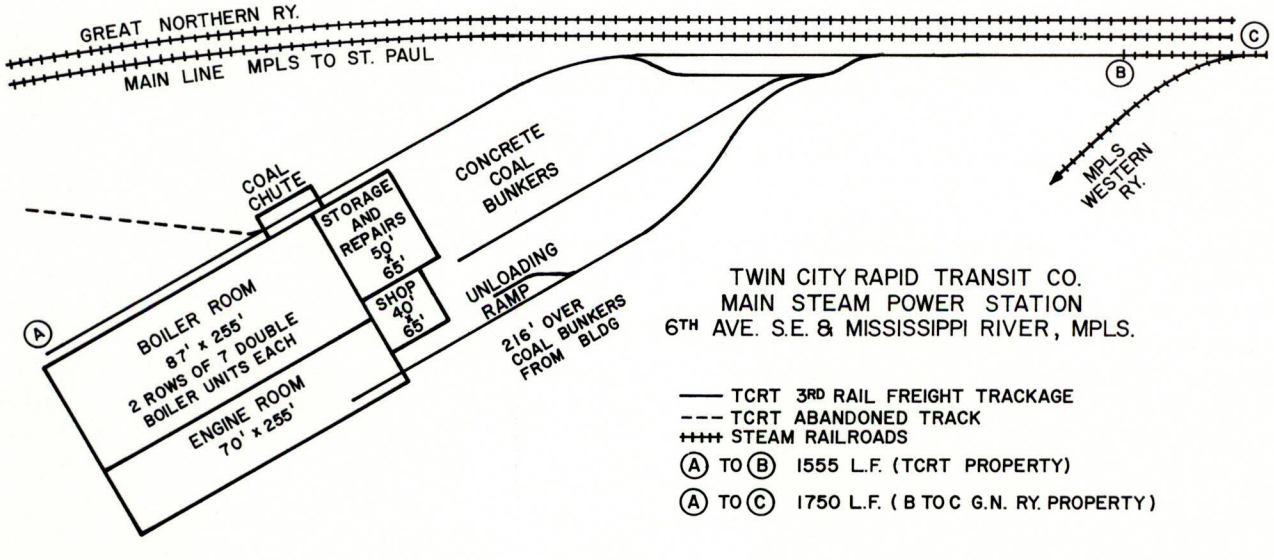
This equipment was abandoned in 1904 upon completion of the Main Steam Station except that the four boilers were moved to the new steam station and the three rotary converters were moved to other substations.

The Main Steam Station in Minneapolis was completed and the first power produced during December, 1903. Consequently during 1904 a number of important changes were made in the power distribution system. The following steam powerhouses were dismantled: #1 at 3rd Ave. N. and 2nd St. N., Minneapolis; #2 at 31st St. and Nicollet Ave., Minneapolis; and Hill St., St. Paul. The eight existing rotary converters (five from substations #1, #2, #3 and three from powerhouse #1) were re-located upon completion of two substations in the new office buildings as follows: two to the Wildwood substation on the Stillwater line; two to a substation at University Ave. and Dale St., St. Paul; and four to the Lower Dam Water Power Station.

On the Stillwater line, the steam powerhouse at North St. Paul was removed from service, the steam powerhouse at Wildwood converted into a substation, and a cross-country high tension power line run from the Main Steam Station in Minneapolis to Wildwood. With regard to the high tension transmission line, underground cables ran to a terminal house (Como Terminal House) located at 21st Ave. S.E. and Talmadge Ave.; from there, the line, carried on wooden poles, extended north on 21st Ave. to Broadway St., east on Broadway to the city limits, cross-country to the right-of-way near Long Lake, thence along the right-of-way to a newly constructed terminal house at Wildwood (Wildwood Terminal House) (just north of the substation on the right-of-way), the terminal house and substation being connected by underground cables.

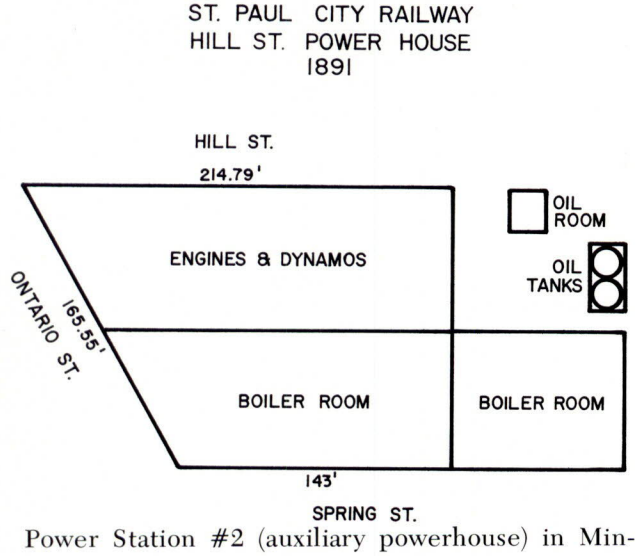
As to the Steam Station itself, the generating machinery consisted of three Allis-Chalmers vertical cross-compound condensing engines (5,000 h.p.) and three General Electric 3500 KW engine type generators; these engine-generator units were numbered #1, #2 and #3. Eighteen Babcock & Wilcox 556 h.p. boilers with Roney stokers provided steam. Expansion was allowed for a total of five engine-generator units and twenty-four boiler units. Current generated was 2300 volt, 35 cycle A.C., stepped up to 13,200 volts A.C. for distribution to the substations. The distribution system consisted of underground conduits (using heavy three-conductor lead-covered cables) overhead transmission lines, and overhead feeders. The boilers burned Pocahontas coal shipped in by railroad. The railroad connection, together with several spur tracks serving the coal bins and ash hoppers — as well as for moving machinery into and out of the station building — was built by TCRT and operated with an electric (third rail) locomotive; as of January 1, 1916, this amounted to 3,723.6 lineal feet of track including one stub and five split switches. Coal was dumped on a conveyor belt and delivered to crushers located in the tunnel under the coal bins, and under the main receiving hopper in the boiler room basement. From there an elevator raised the coal to a bin in the upper portion of the boiler


CAMERA WORK BY SWEET MPLS


GREAT NORTHERN RY.
MAIN LINE MPLS TO ST. PAUL
A
B
C
COAL CHUTE
STORAGE AND REPAIRS 50' x 65'
SHOP 40' x 65'
CONCRETE COAL BUNKERS
UNLOADING RAMP
216' OVER COAL BUNKERS FROM BLDG
BOILER ROOM 87' x 255' 2 ROWS OF 7 DOUBLE BOILER UNITS EACH
ENGINE ROOM 70' x 255'
MPLS WESTERN RY.
TWIN CITY RAPID TRANSIT CO.
MAIN STEAM POWER STATION
6TH AVE. S.E. & MISSISSIPPI RIVER, MPLS.
TCRT 3RD RAIL FREIGHT TRACKAGE
TCRT ABANDONED TRACK
STEAM RAILROADS
A TO B 1555 L.F. (TCRT PROPERTY)
A TO C 1750 L.F. (B TO C G.N. RY. PROPERTY)

In St. Paul, the main powerhouse was built on Hill St. near West 3rd St. (now Kellogg Blvd.); it was a three story, brick building measuring 137' x 145'. Full operation was attained by September, 1891, and as completed supplied electricity for all St. Paul lines, the Interurban line, and some Minneapolis lines. Equipment consisted of: three Allis triple expansion, condensing Corliss engines of 1,000 h.p. each; one Thomson-Houston generator rated at 100 h.p.; sixteen Edison dynamos rated at 175 h.p. each; six Babcock & Wilcox boilers rated at 300 h.p. each; and one Buckeye engine for one 100 arc-light machine.

One source states that the boilers were crude oil fired while another source says that both coal and crude oil were used. Frank Trumbull's 1893 inspection report stated that he felt the arrangement of the Hill St. powerhouse was superior.



Power Station #2 (auxiliary powerhouse) in Minneapolis was located at 31st St. and Nicollet Ave. So. Construction began during 1891 and was completed in May, 1892. This station supplied electricity for all Minneapolis lines south of Washington Ave. and east of Nicollet Ave. Equipment consisted of: ten Westinghouse compound non-condensing engines of 250 h.p. each; nine Thomson-Houston multi-polar generators rated at 250 KW each; one exciter generator; one 100 arc-light machine; and seven Stirling boilers (crude oil fired) (160 p.s.i.) rated at 287 h.p. each.

Cappelen's 1916 valuation reported five boilers, ten Westinghouse engines (260 h.p. each), and ten 250 KW Type M.P. generators, for a total capacity of 2500 KW.

Hydro-Electric Power

With continued growth of the system, planning was initiated during 1895 to develop an additional source of power. Up to this time the method of power generation consisted of steam powered fly-wheel engines belted through jackshafts to direct current generators supplying the D.C. directly to the trolley wire. Alternating current distribution systems had recently been developed so TCRT decided to utilize A.C. distribution with the electricity generated by water-powered turbines operated by the flow of the Mississippi River. A contract was signed December 5, 1896, with the St. Anthony Falls Water Power Co. for the purchase of electric power. Pillsbury-Washburn Co., owners of the St. Anthony Falls Water Power Co., constructed the Lower Dam Water Power Station on the north bank of the Mississippi River at 8th Ave. S.E. which upon completion was leased to TCRT. The first power was produced from this station during December, 1897.

The building measured 57' x 250' and the turbine chambers 40' x almost 250' — sufficient space for ten 700 K.W. generating units to be directly connected to horizontal water wheels (turbines). The original intention was to shut down the three existing steam stations (combined capacity 5,000 h.p.), retaining two (Mpls.-3rd Ave. N. and 2nd St. N., and St. Paul-Hill St.) as standby plants and dismantling the third (Mpls.-31st St.), but this was not immediately done.

The machinery originally installed during 1897 consisted of: Five General Electric 700 KW, multi-polar, 3 phase, 3450 volt A.C. alternators; two General Electric 700 KW, multi-polar (8), 600 volt D.C. generators. To the generator shaft of each of these seven units was directly connected two pairs of 42" horizontal turbines (a total of four 42" wheels for each unit) manufactured by Stillwell-Bierce and Smith-Vaile Co. These "Victor" turbines operated at 130 R.P.M. and were rated at 250 h.p. each, or 1,000 h.p. per generating unit.

In the east end of the building were two D.S. Morgan Water Wheel Co. 150 h.p. turbines directly connected to two 100 KW, multi-polar, continuous generators providing exciting current to all of the 3 phase alternators in the station. Two headgates, each 8' wide by 9' high, admitted water to the turbine chambers.

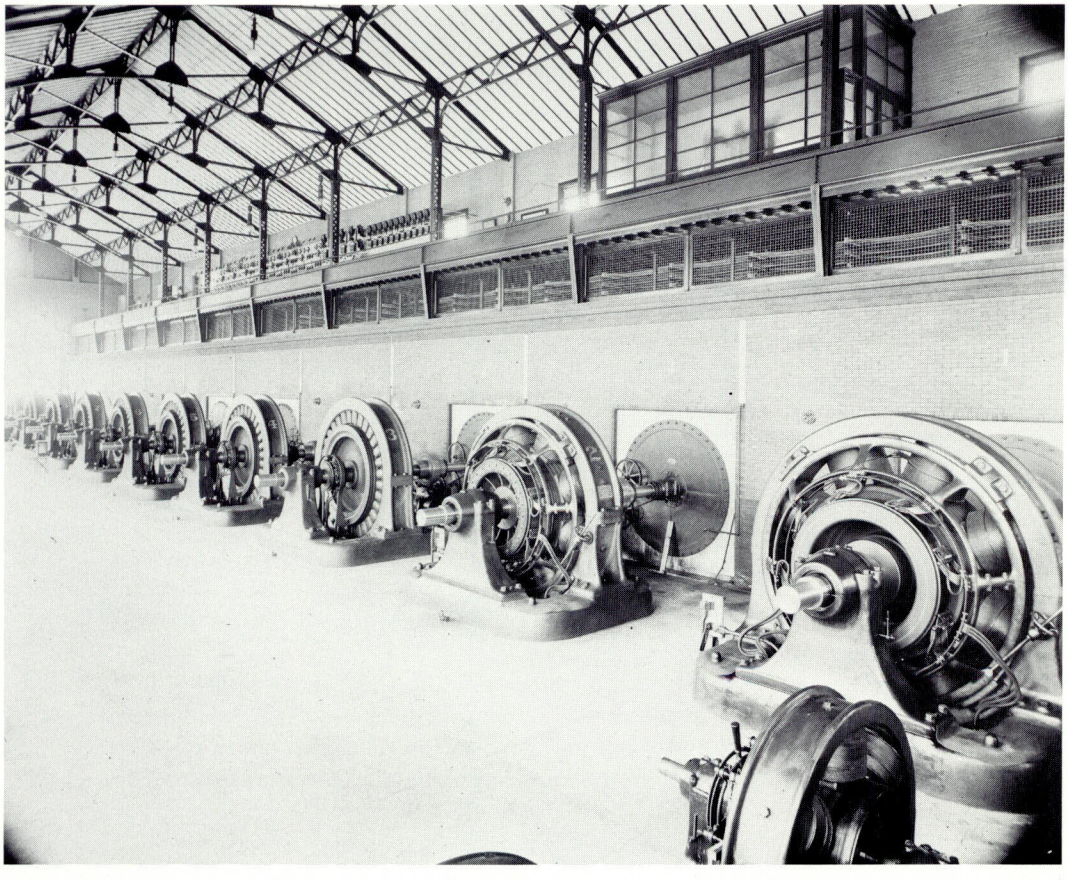
The five AC alternators generated 3450 volts A.C. for short distance transmission and for stepping up to 12,000 volts A.C. for long distance transmission. The two D.C. generators provided D.C. for operating nearby lines. Three substations were also placed in service at this same time (1897):

1. Minneapolis (in the heart of the city, 1.7 miles from the LDWPS — probably 3rd Ave. N. and 2nd St. N.). Transmission was at 3450 volts A.C., and the equipment consisted of two rotary converters of 600 KW each.
2. Minneapolis (4.5 miles from the LDWPS — probably 31st and Nicollet Ave.). Transmission was at 3450 volts A.C., and the equipment consisted of one 600 KW rotary converter.
3. St. Paul (10 miles from the LDWPS — in the Hill St. Steam Station). Transmission was at 12,000 volts A.C. and the equipment consisted of two 600 KW rotary converters. Paper-insulated underground cables were used for the distribution system.

All five rotary converters ran in parallel with the existing steam-powered generators.

An additional substation was established during 1899 on Dale St., at the alley south of University Ave., with two 600 KW rotary converters. AC was transmitted at 12,000 volts from the LDWPS.

By 1902 there were ten 1,000 h.p. turbine units of 7,000 KW total capacity; 8 were directly connected to G.E. 3450 volt A.C. alternators, and 2 to G.E. 650 volt D.C. generators.



Exterior of the newly completed Lower Dam Water Power Station, 1896. (N. W. Photocopying Co.; Robert Bowes collection)

Interior of the Lower Dam Water Power Station. (Sweet Studios; Robert Bowes collection)

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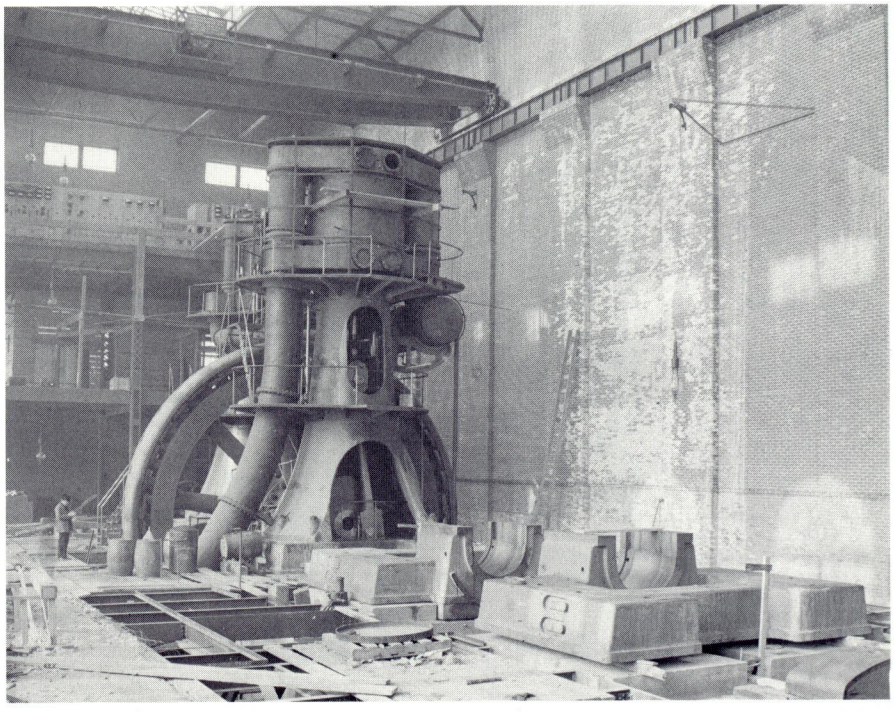
Exterior of the newly completed Main Steam Station, 1903, in Minneapolis. A second radial brick stack was added later.



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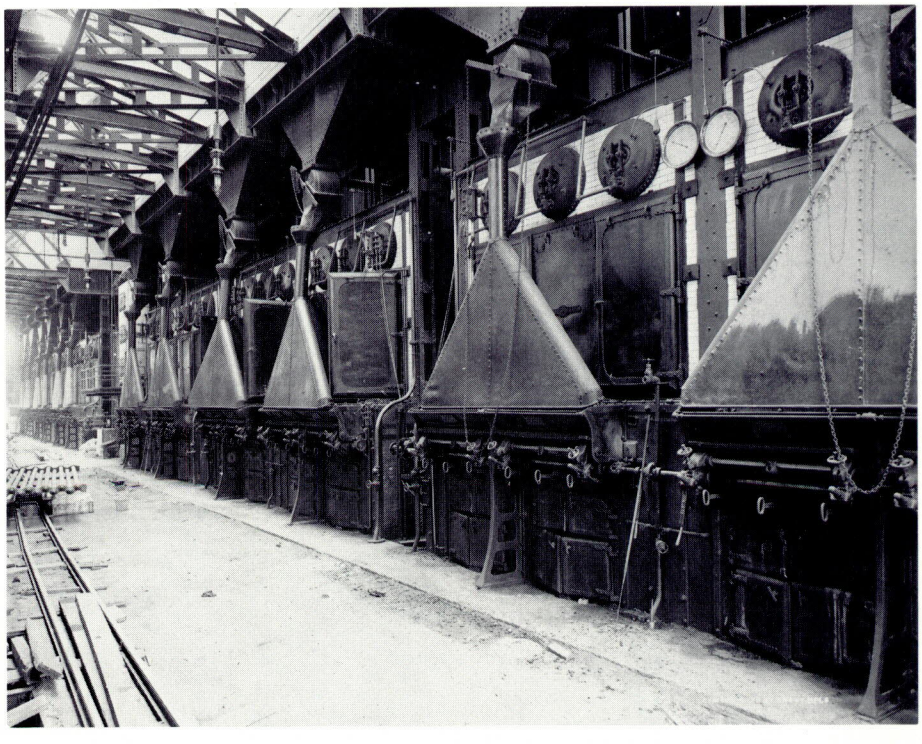
Top: Construction view of the Main Steam Station, showing one of the vertical engine-generator units being installed.



Construction view of the boilers at the Main Steam Station undergoing their initial firing.

(All photographs Sweet Studios; Robert Bowes collection)

house; as needed coal passed down chutes into automatic stokers which fed the boilers. The coal conveyors and crushers had a capacity of 75 tons per hour; storage bunkers outside held 3,000 tons. Combination coal and ash handling machinery was also utilized. During 1904 a fourth engine-generator unit, #4, was ordered, identical to the other three units, giving a total capacity of 14,000 KW; this unit and eight boilers were installed in April, 1906, to meet the needs of the Lake Minnetonka Division.

Improvements to the Main Steam Station generating machinery and boilers were made continuously over the years. The major programs were as follows:

In February and July, 1907, the first two turbo-generator units, #5 and #6, were installed. Each consisted of one Curtis Steam Turbine and one General Electric 5000 KW generator. Beginning in 1909 chain grate stokers were installed replacing the original type.

It was subsequently decided to replace the vertical compound engines and engine type generators with more modern turbo-generator units. Engine-generator units #1, #2 and #3 were replaced by Turbo-generator units #1, #2 and #3 in 1910 (Feb., 1911), 1912, and 1913 respectively. Each new unit consisted of a Curtis steam turbine and General Electric generator; unit #1 was of 14,000 KW capacity while units #2 and #3 were of 15,000 KW capacity each. (This left only one engine-generator unit, #4.) The total capacity of the station was 57,500 KW. As of January 1, 1916, the plant contained 28 Babcock & Wilcox boilers, 556 h.p. each, operating on 200 p.s.i. pressure. Two Custodis radial-brick smokestacks 162' high were used at first. These were replaced by four brick-lined steel stacks 14' diameter and 265' high — two in November, 1910 and two in August, 1912.

The largest and most efficient steam turbine-generator unit to date was installed and completed during November, 1917; this was turbo-generator unit #4 replacing old engine-generator unit #4. The unit consisted of a Curtis steam turbine and a General Electric 20,000 KW generator. The total capacity of the station was now 74,000 KW.

The #4 turbine-generator unit installed in 1917 was rebuilt and modernized during 1930 and 1931. Two modern boilers (400 p.s.i. pressure) were purchased for the #4 unit at a cost of $125,000 and were installed in 1931 and 1932.

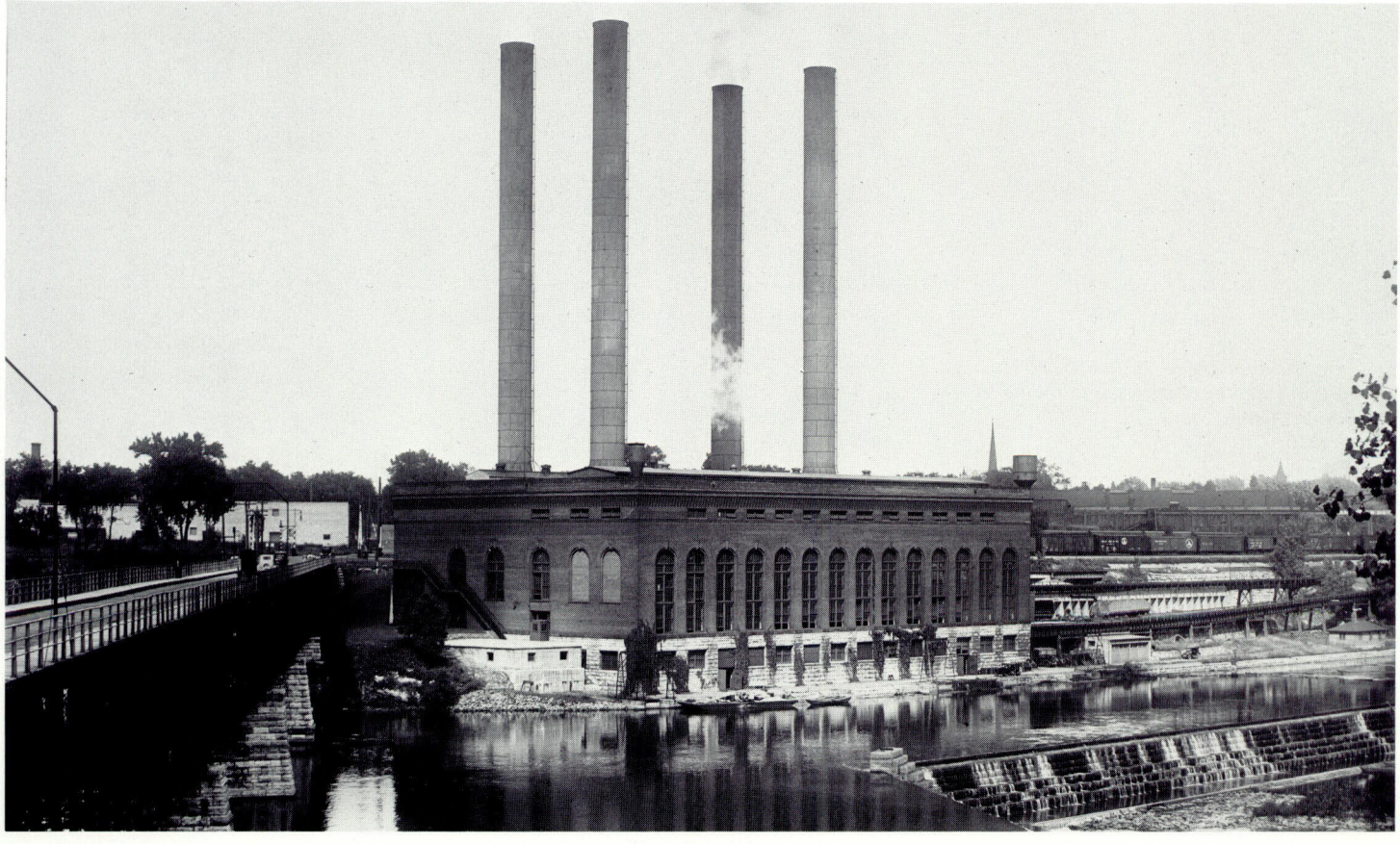
Of the two vertical 200 p.s.i. steam turbines, one was rehabilitated during 1934 so that only two units, #4 and this one, were needed to meet the 43,000 KWH peaks. It was reported that 1.47 lbs. of coal per KWH was consumed.

During 1936 it was necessary to rebuild the steam turbine of the 15,000 KW unit and to completely overhaul the two smaller 5,000 KW units. During 1937 the most modern type oil switches and reactors were installed throughout. One of the older 14,000 KW generator units which had been out of service for several years was rebuilt and placed back in operation during 1938.

One new large high pressure boiler was installed during 1941 at a cost of $251,259. This was the first boiler which was equipped to burn either natural gas or pulverized coal. Previously the station operated exclusively on coal. During 1943 additional boilers were adapted to burn either natural gas or coal.

In 1944 one new horizontal 15,000 KW turbine-generator unit, estimated to cost $657,000, was ordered for installation in 1945 to replace the two small 5,000 KW turbine-generator units of 1907 which were obsolete and unreliable.

The last major improvement was the installation during 1949 of one new natural gas/coal fired boiler at a cost of $471,686.



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The Main Steam Station as it appeared in 1926.

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Above: The Hennepin Island Water Power Station, 1926.

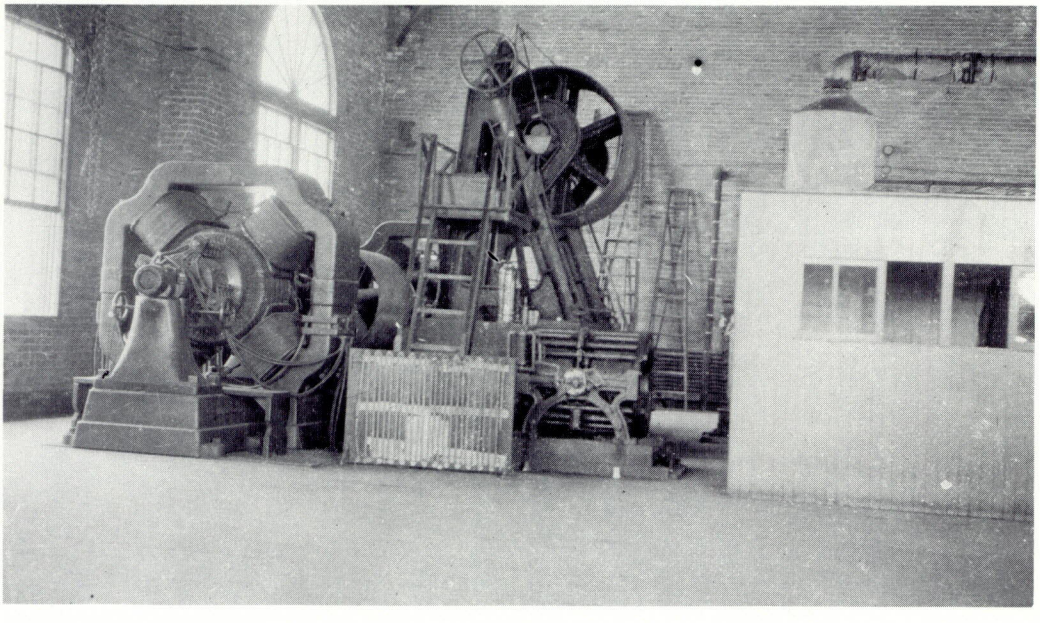
Below: Interior of the Hennepin Island Water Power Station.

(All photographs A. D. Roth; Robert Bowes collection)

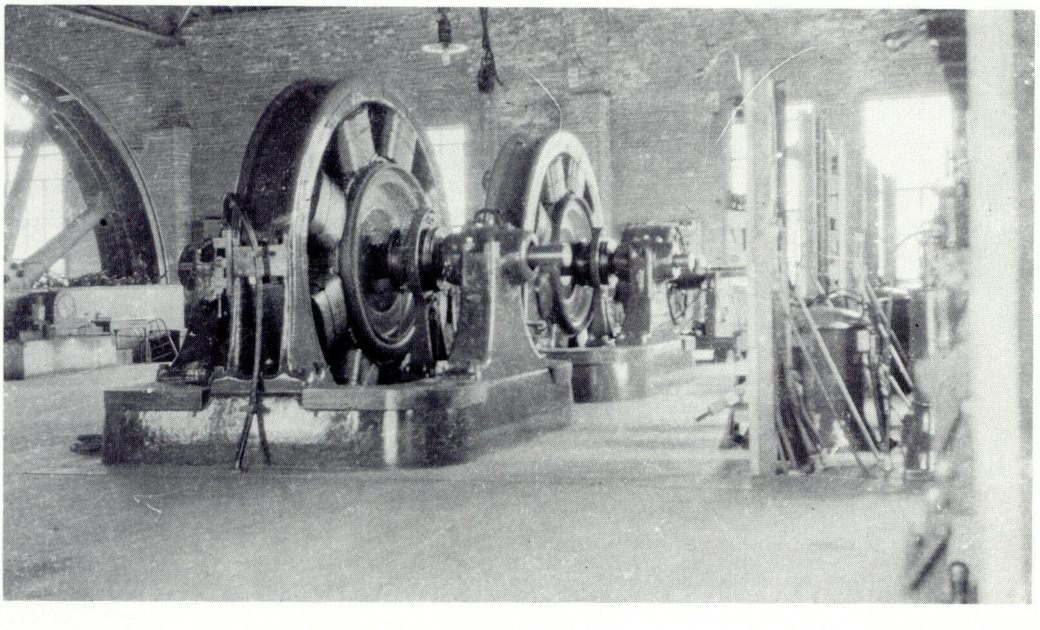
Additional Hydro-Electric Power

The St. Anthony Falls Water Power Co. began construction in May, 1908, of the Hennepin Island Water Power Station in Minneapolis which was leased to TCRT upon completion. This was equipped with four turbo-electric A.C. generators of 2250 KW capacity each, for a total capacity of 9000 KW.

The Wildwood Substation as it appeared in 1911. The original steam station equipment was contained in the east (left) half of the building while the substation equipment was later installed in the west half.



The Wildwood steam powerhouse equipment was intact but unused as of 1911, except that the drive belt had been removed. One Corliss engine had been belted to two D. C. generators. The two generators with pulleys for the drive belt are prominent in the photograph. In the center is an electric heater mounted in front of the arc lite machine.



The two rotary converters and control panels in the Wildwood Substation as they appeared in 1911. The flywheel of the Corliss engine can be seen at the far left.

(All photographs historical collection of S. D. Dimond)

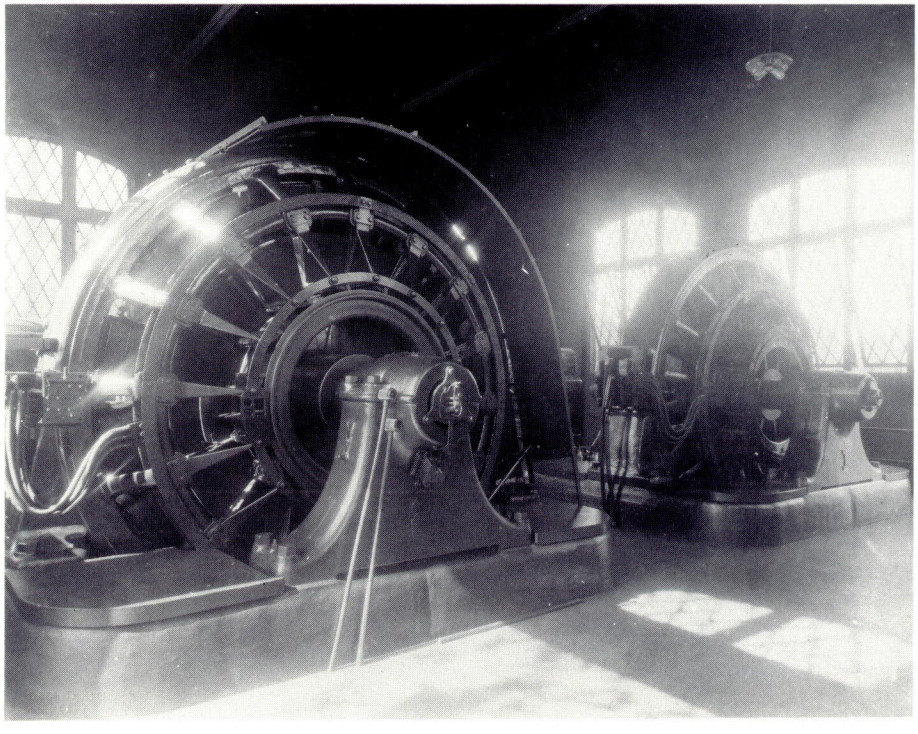
Substations

The typical substation building was approximately 50' square with monolithic concrete foundations, cement brick walls, and a clear height in the machine room of 23'6". The typical complement of equipment consisted of: two 1500 KW, six phase, rotary converters (of three types — General Electric H.C. 16-1500-260 Form M, N, or K); six 550 KW air blast transformers; five remote control oil switches; two air blast reactance coils; motor driven fans of 20,000 c.f.m. capacity; switchboard with machine panels, line panels, and D.C. panels for ten outgoing feeders; and storage batteries for use as regulators during extreme load conditions.

Two office buildings were completed during 1903 located at 11th St. and Hennepin Ave., Minneapolis, and College Ave. and Wabasha St., St. Paul. Each contained a substation; planned initially to contain three rotary converter units, space was provided for up to three additional units.

In June, 1907, the substation in the carhouse building at Snelling and University Avenues was completed, replacing the existing substation at University Ave. and Dale St.

A view of the typical substation: Hope St., St. Paul.



Interior of a typical two 1500 KW rotary converter substation.

(Both photographs A. D. Roth; Robert Bowes collection)

Substation data as of December, 1913, is presented in the following table:

No.	Name and Location	Building Size	Rotary Converters No.	Rotary Converters Size	Total Capacity
11	11th St. Minneapolis 11th St. and Hennepin Ave.		5	1500 KW	7500 KW
13	Lower Dam Minneapolis Lower Dam Water Power Station		4	600 KW	2400 KW
14	Lake St. Minneapolis Chicago Ave. and Lake St.	50' x 55'	2	1500 KW	3000 KW
15	College Ave. St. Paul College Ave. and Wabasha St.		5	1500 KW	7500 KW
16	Snelling Ave. St. Paul Snelling and University Avenues		2	3000 KW	6000 KW
18	Como Terminal House Minneapolis 21st Ave. S.E. and Talmadge Ave.		Contained the switchboard for the high tension transmission line from the Main Steam Station to Wildwood: underground to overhead.		
?	Wildwood Terminal House Wildwood	13' x 20'	Contained the switchboard for the high tension transmission line from the Main Steam Station: overhead to underground.		
20	Wildwood (furnished power to Wildwood Park)	75' x 130' or 79' x 131'	2	600 KW	1200 KW
21	Stillwater Owen St. and the right-of-way	32' x 50'	2	600 KW	1200 KW
22	Harriet Terminal House Minneapolis Upton Ave. and the right-of-way		Contained the switchboard for the high-tension transmission line from the Main Steam Station to Excelsior: underground to overhead.		
23	Hopkins Washington Ave. and 3rd St.	42' x 74' or 40' x 72'	3	600 KW	1800 KW
25	Excelsior Division St. and the right-of-way (Operator's cottage located on the property measured 24' x 30')	42' x 74' or 40' x 72'	3	600 KW	1800 KW
28	Lowry (32nd Ave.) Minneapolis Lowry Ave. N. and 3rd St. N.	43' x 48'	2	1500 KW	3000 KW
29	Hope St. St. Paul E. 7th and Hope Streets	44' x 47'	2	1500 KW	3000 KW
30	Minnehaha Minneapolis 27th Ave. So. and 29th St.	40' x 45'	2	1500 KW	3000 KW
31	University Minneapolis 2nd Ave. S.E. and 4th St. S.E. (Attached carhouse and garage measured 50' x 50')	44' x 48'	2	1500 KW	3000 KW
32	Girard Ave. Minneapolis	45' x 45'	2	1500 KW	3000 KW
Totals			38		47400 KW

Comments:

As of the above date, the two 3000 KW units at the Snelling Ave. substation were new units having just replaced several 1500 KW units. By 1922 two motor-generator sets of 300 KW capacity each had been installed for supplying power to the shops.

At the Lower Dam Water Power Station alterations had been made to the leased one-story tile and stone building to accommodate a substation. The 1904 plans called for the location of four rotary converters here. By January 1, 1916, however, only one booster set was located here which consisted of one General Electric 400 h.p. electric motor (440 volt) driving two generators of 135 KW capacity each, three transformers for the booster set, and six transformers for two transmission lines (three for each line) to the Main Steam Station.

By 1916-1917 the equipment at the College Ave. substation consisted of three 1500 KW and one 3000 KW rotary converters.

A third rotary converter of 600 KW capacity was subsequently installed in the Wildwood substation, making the total capacity 1800 KW.

The Hopkins and Excelsior substations were built large enough to contain four 600 KW rotary converters each. The high-tension transmission line ran underground from the Main Steam Station through the 11th St. substation to the Harriet Terminal House. From there the line was carried on the overhead poles to the two substations. In the earlier years a branch transmission line ran from a short distance west of the Excelsior substation two miles overhead and ½ mile in a submarine cable under Lake Minnetonka to a 600 KW substation on Big Island which provided electricity for lighting the island and power for the amusement features.

As of December, 1913, substations 31 and 32 had just been completed, 32 being the newest.

No. 33, the Concord St. substation, located at Concord and Isabel Street, St. Paul, was built about 1916-1917 and contained one 1500 KW rotary converter with automatic control. By 1922 a second 1500 KW rotary converter had been installed.

After the closing of Wildwood Park in 1938, the high-tension transmission line from the Main Steam Station to Wildwood was dismantled and the rotary converters removed from the Wildwood substation.

A mercury converter was installed in the University substation, Minneapolis, during 1948.

Right: The Wildwood Substation as it appeared in 1936 having been out of service for several years. (Minnesota Historical Society collection)

Below left: A view of the Wildwood Terminal House after grading for the highway removed the wooded hill between the substation and the right-of-way.

Below right: A view of the Hopkins substation many years after it had been removed from service.

(Both photographs historical collection of S. D. Dimond)

Summary

During the peak years of operation in the late 1920's, the entire power generating and distributing system comprised the following components.

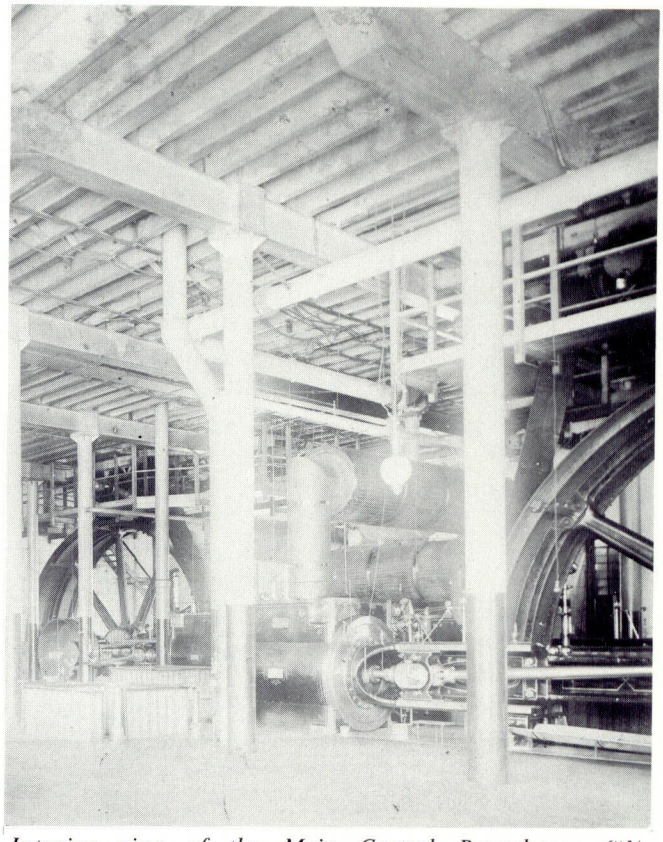
The Main Steam Station in Minneapolis contained six steam turbine-generator units with a total capacity of 74,850 KW. Coal requirements were 165,000 tons annually.

The Lower Dam and Hennepin Island Water Power Stations contained fourteen hydro-electric generators with a total capacity of 14,650 KW. The entire flow of the Mississippi River was used by the two plants.

Fourteen substations (one with automatic control) housed thirty-nine rotary converters with a total capacity of 51,900 KW.

The distribution system consisted of approximately 200 miles of underground cable and approximately 300 miles of overhead feeder wire.

After abandonment of the street railway system in June, 1954, the last power was furnished by the Hennepin Island Water Power Station for the Snelling Shops in St. Paul until July 2nd when it was closed down. The Main Steam Station, Lower Dam and Hennepin Island Water Power Stations were subsequently sold to Northern States Power Co. for conversion to a peak load facility.



Interior view of the Main Central Powerhouse (#1), Minneapolis, about 1901, showing a portion of one of the Corliss engines. (Edmund A. Brush; Robert Bowes collection)

4. CARHOUSE, SHOP AND OFFICE BUILDINGS

Horsecar Barns
Minneapolis

Name	Location	Date Built
University	4th St. S.E. and 14th Ave. S.E.	1875
Franklin	16th Ave. S. and Franklin Ave.	1878
4th Ave.	4th Ave. S. and 24th St.	1878
Riverside	24th Ave. S. and Riverside Ave.	1880
Broadway	2nd St. N.E. and Broadway St.	1881
8th Ave.	8th Ave. S. and Franklin Ave.	1881
Monroe	Monroe and Broadway Streets N.E.	1882
19th Ave. N.	19th Ave. N. and Washington Ave.	1882
Lyndale (Windom)	28th St. and Dupont Ave. S.	1884
Minnehaha	27th Ave. S. and 26th St.	1884
3rd Ave. N.	3rd Ave. N. and 2nd St. N.	1885
	The company's general offices were moved here effective June 1, 1885.	

Minneapolis St. Ry. – Horsecar Barn Trackage

Barn	Tangent Track L.F.	Curved Track L.F.	Depressed Track for Transfer Table L.F.
3rd Ave. No.	530	60	135
Minnehaha	1010	70	—
19th Ave. No.	1360	—	215
Lyndale	350	50	35
8th Ave. So.	590	—	—
4th Ave. So.	960	105	50
University	1050	—	—
Franklin	510	—	—
Broadway	240	(had one turntable)	
Monroe	300	—	—
Riverside	290	—	—

St. Paul

The first barn was a two-story brick building, 25' x 200', built in 1872 on the northeast corner of W. 3rd St. and Exchange St., along Exchange to 4th St.

A one-story 38' x 150' building on 4th St. between St. Peter and Wabasha Streets was completed in May, 1875. In April, 1879, construction was in progress on a two-story brick building at the corner of 4th and St. Peter Streets. A three-story brick building was completed in July, 1880, at the corner of 5th and St. Peter Streets, with 50' frontage on 5th St. and 109' on St. Peter St., extending back nearly to the rear of the 1879 building. The ground floor housed 30 cars and 150 horses, the second floor the general offices, blacksmith and repair shops, and the third floor employees' sleeping rooms.

Name	Location	Date Built
Kent St.	University Ave. — Kent St. to Aurora Ave.	1881
Laurel Ave.	Laurel Ave. — Dale to Kent Streets	1882
West 7th St.	7th St. — Lee St. to Tuscarora Ave.	1882
	Grand Ave.-Avon to Victoria Streets	1883
Smith Ave.	Ramsey St. — Smith Ave. to Thompson St.	1884
Rice St.	Rice St. and Front Ave.	1884
Greenbrier	Maryland Ave. and Greenbrier St.	1888

Horsecar barns converted to carhouses during electrification of the system 1890-1892

The newest barns in either city were selected for conversion to carhouses for the electric cars. In Minneapolis the 19th Ave. N., Lyndale, Minnehaha, and 3rd Ave. N. barns were converted, while in St. Paul the Smith Ave. and Rice St. barns were so treated. Repair shops for the Minneapolis system were located at 3rd Ave. N. Repair work for the St. Paul system was performed at the E. 7th St. cablecar house although the cable line on E. 7th St. was not electrified. The "Merriam Park" extension of the cable line on Selby Ave. was an electric line, with its cars operating out of the Selby Ave. cablecar house. By 1891 the general offices of SPCR had been moved to the Smith Ave. carhouse.

Disposition of old horsecar barns

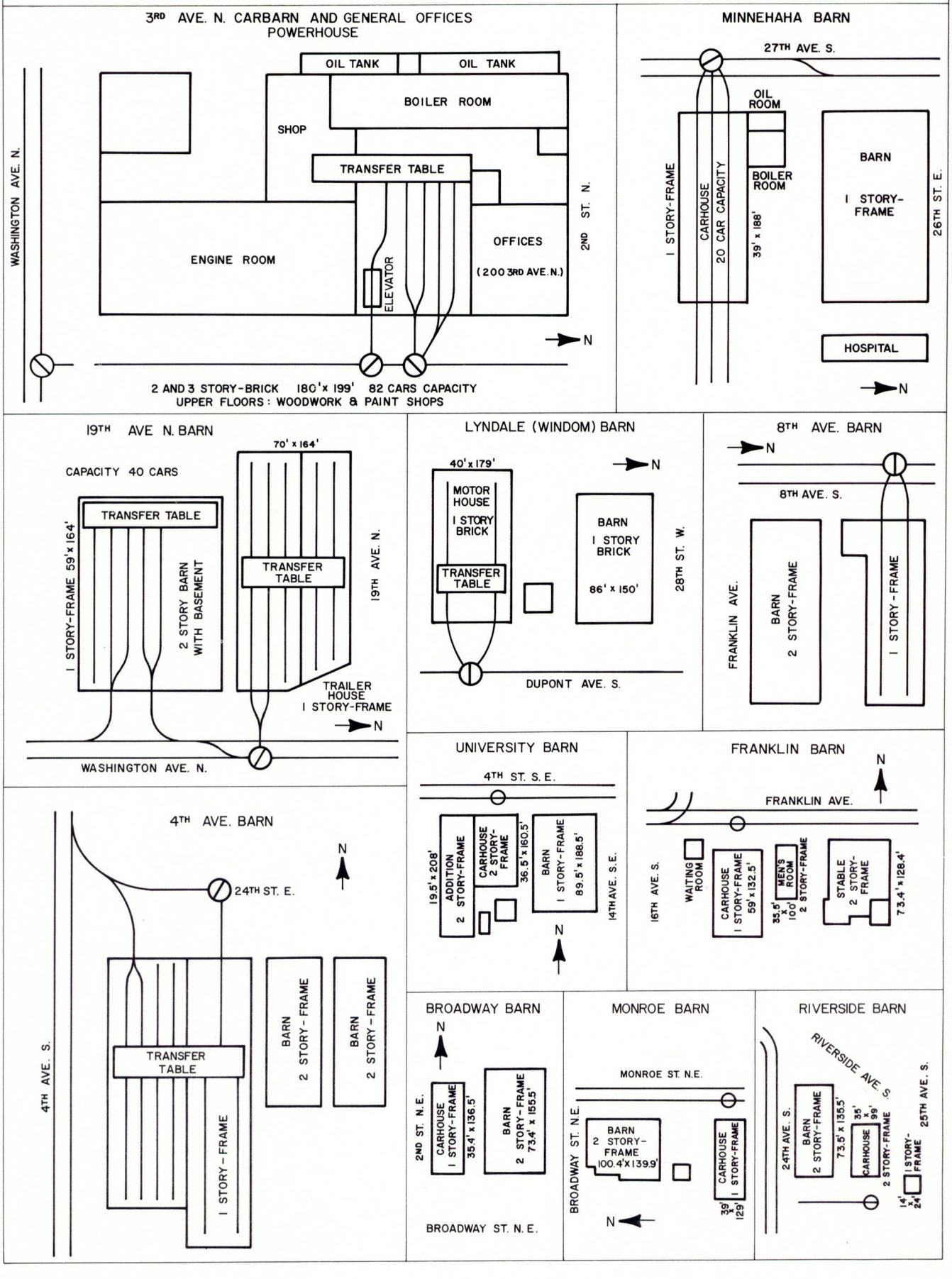
The West 7th St. barn, St. Paul, was destroyed by fire in December, 1891, along with 23 out-of-service horse cars.

The barns on Grand Ave. were completely destroyed by fire October 8, 1892.

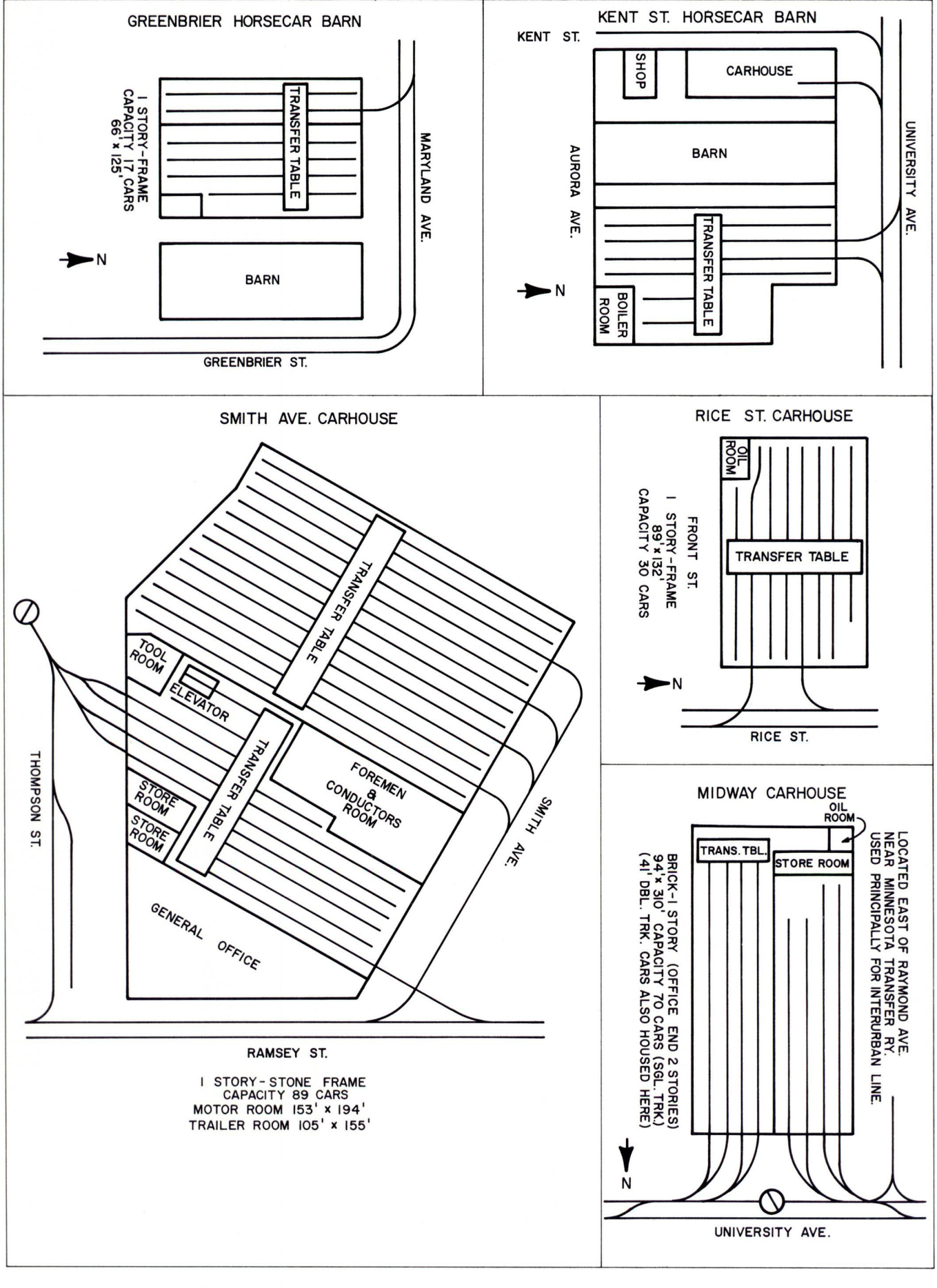
The Kent St. barn, St. Paul, was used only for storage of unused and disabled electric cars. When the "E. 7th St." cable line was electrified in 1893, cable equipment and supplies were placed in storage here. The buildings were destroyed by fire in 1895 along with approximately 100 cars that were in storage.

TCRT retained ownership of the real estate at most sites for many years. Use and disposition of the buildings, as well as the real estate, is unknown. The Exchange St. property was still owned in 1893, but had been disposed of by 1897 when a list was compiled of the real estate owned. This list included the University, Franklin, 4th Ave. S., Broadway, 8th Ave., and Monroe barn sites in Minneapolis, and the St. Peter St., Kent St., Laurel Ave., and West 7th St. barn sites in St. Paul. The St. Peter St. site in St. Paul was that on which the 12-story Lowry Building was erected in 1911 by the Arcade Investment Company of which Horace Lowry was President.

MINNEAPOLIS ST. RY. HORSE CAR BARNS TRACK DIAGRAMS 1890

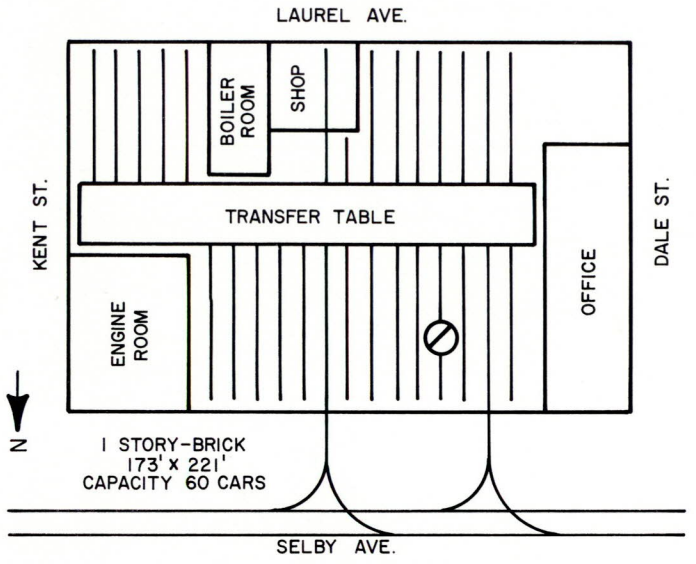


ST. PAUL CITY RY. HORSECAR BARNS AND CARHOUSES 1892



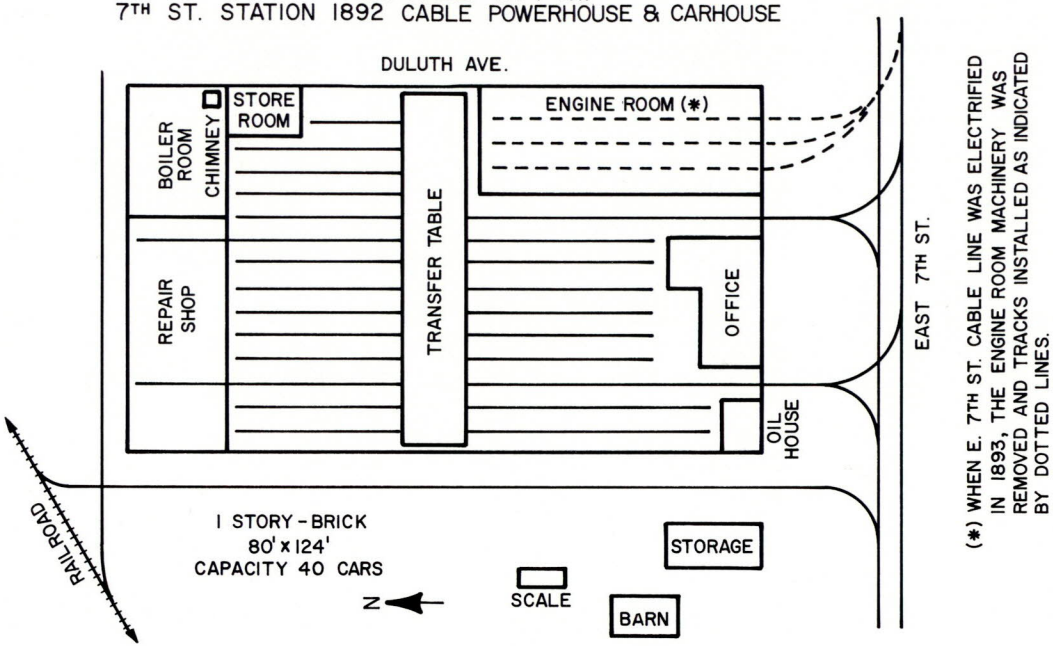
ST. PAUL CITY RY.

SELBY CABLE POWERHOUSE - CABLE CAR HOUSE
STREETCAR HOUSE
1892



ST. PAUL CITY RY.

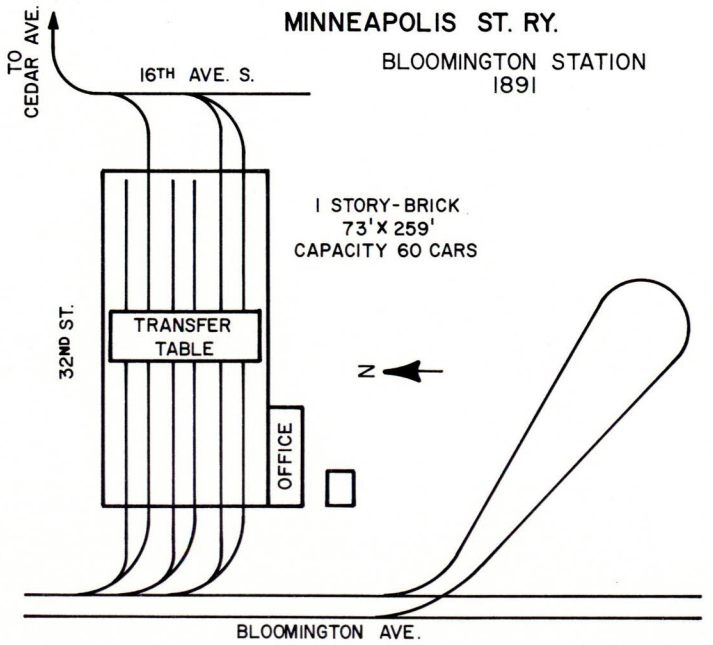
7TH ST. STATION 1892 CABLE POWERHOUSE & CARHOUSE



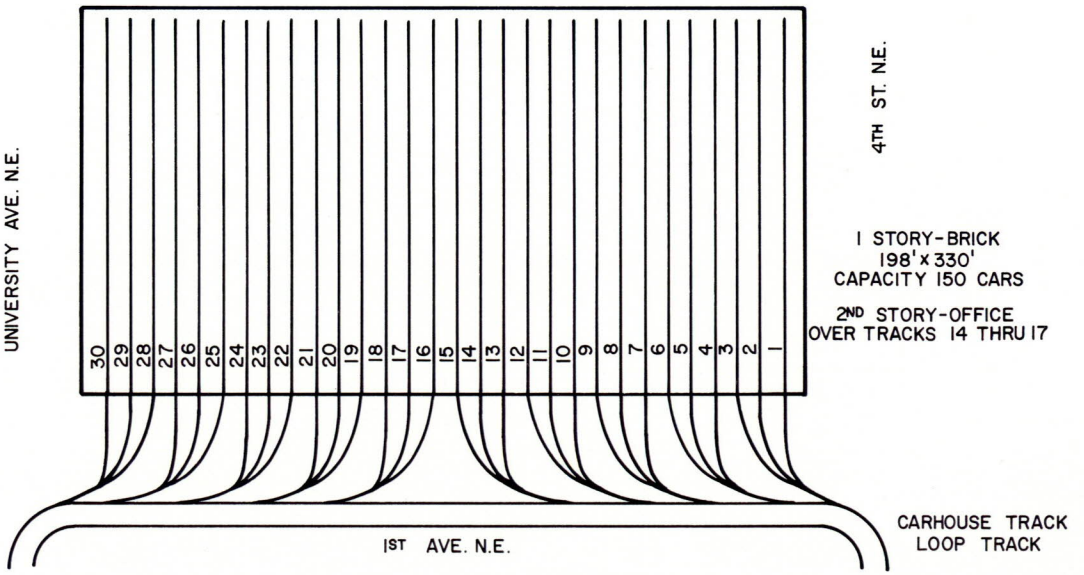
(*) WHEN E. 7TH ST. CABLE LINE WAS ELECTRIFIED IN 1893, THE ENGINE ROOM MACHINERY WAS REMOVED AND TRACKS INSTALLED AS INDICATED BY DOTTED LINES.

MINNEAPOLIS ST. RY.

BLOOMINGTON STATION
1891



MINNEAPOLIS ST. RY. EAST MINNEAPOLIS STATION 1891



New car station construction during electrification of the system

Minneapolis

The "Motor Line" roundhouse, repair shop and car storage yard at 31st St. and Nicollet Ave. were acquired with the lease of the M. L. and M. Ry. in 1887. MSR decided this was a highly suitable operating location. During 1890 the office-storehouse building was constructed on the northwest corner of the property at 31st St. and Blaisdell Ave. for use as a general storehouse plus offices for the purchasing agent, engineer, roadmaster and master mechanic. A large brick carhouse building on the southeast corner of the property at 32nd St. and Nicollet Ave. was completed in June, 1891. In late 1891 the existing roundhouse and repair shop was modified to provide a complete general repair shop for both Minneapolis and St. Paul systems. Beginning August 13, 1892, all repairs to all equipment were performed here.

East Side Station (East Minneapolis Station) was built during 1891 on 1st Ave. N.E. between University Ave. N.E. and 4th St. N.E.

Bloomington Station, located at 32nd St. and Bloomington Ave., was completed in 1891. This rather small facility may have originally been intended for the proposed cablecar line on Bloomington Ave.

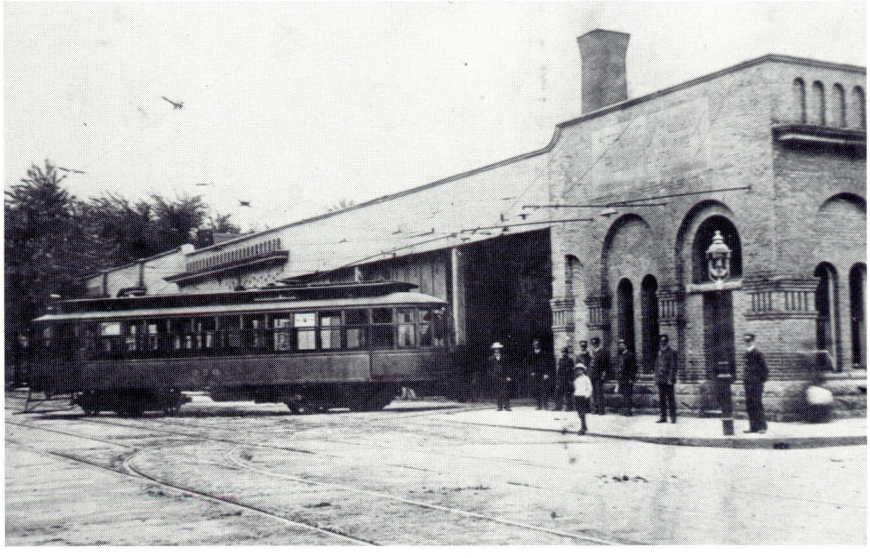
St. Paul

Midway Station was built during 1891 on University Ave. between La Salle and Carlton Streets.

Conversion of cablecar houses to car stations

The Selby Ave. Station had been used by the electrically operated extension of the cablecar line opened in 1891. Upon electrification of the "Selby Ave." line in 1898, it was converted for complete electric car operation.

Upon electrification of the "E. 7th St." line in 1893, the E. 7th Street Station was converted for electric car operation.



"St. Paul City Ry. Power House No. 1 1887" is the inscription over the entrance to the office portion of this building, which was the cable powerhouse and carhouse for the "Selby Ave." line. It was later converted to an electric carhouse and power (sub?) station.

Midway carhouse, St. Paul.

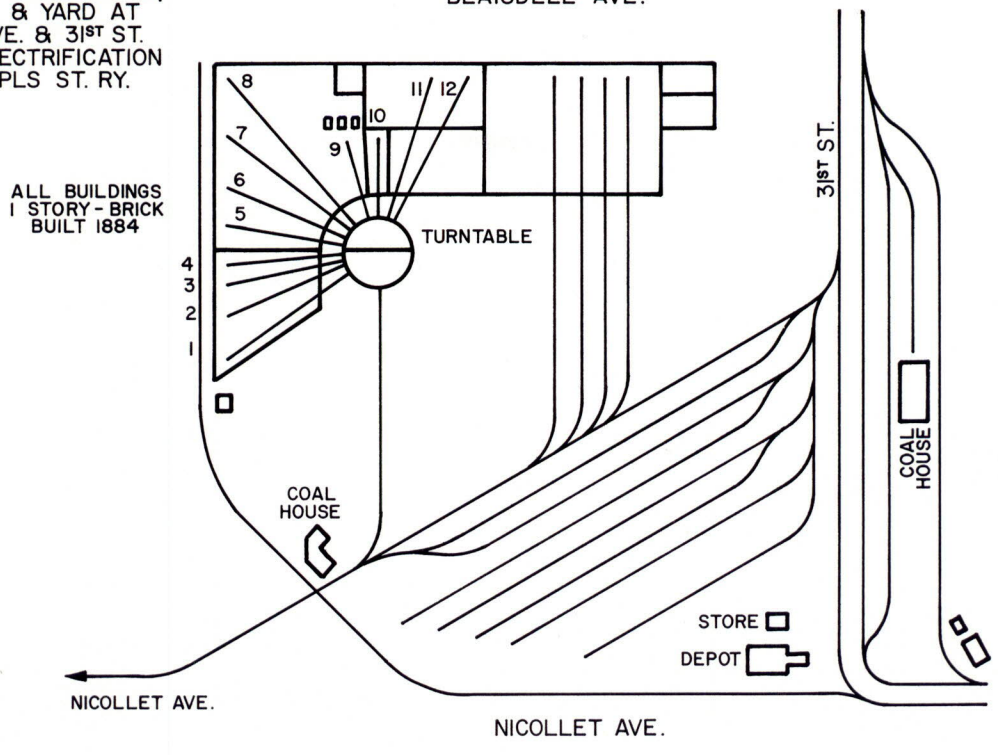
(Both photographs Joe Hutchinson collection)

Above: The original repair shops at 31st St. and Nicollet Ave., Minneapolis, about 1901. The chimney for the power-house dominates the sky line. (Edmund A. Brush; Minnesota Historical Society collection)

Below: 31st St. Station, Minneapolis, looking south o Nicollet Ave. toward 32nd St. (Robert Bowes collection)

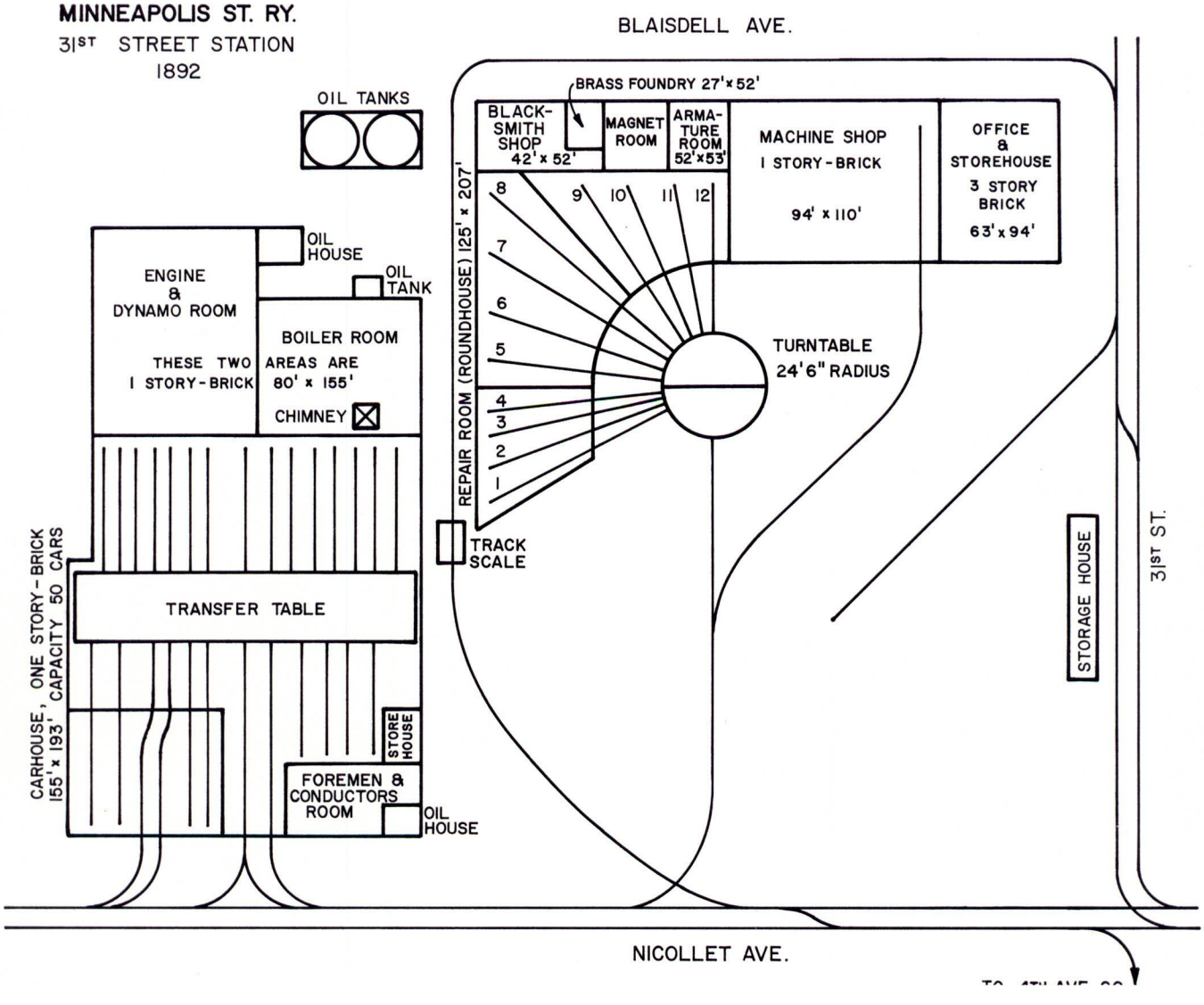
MINNEAPOLIS, LYNDALE & MINNETONKA RY.

STEAM MOTOR LINE SHOPS, ROUNDHOUSE & YARD AT NICOLLET AVE. & 31ST ST. PRIOR TO ELECTRIFICATION IN 1890 BY MPLS ST. RY.

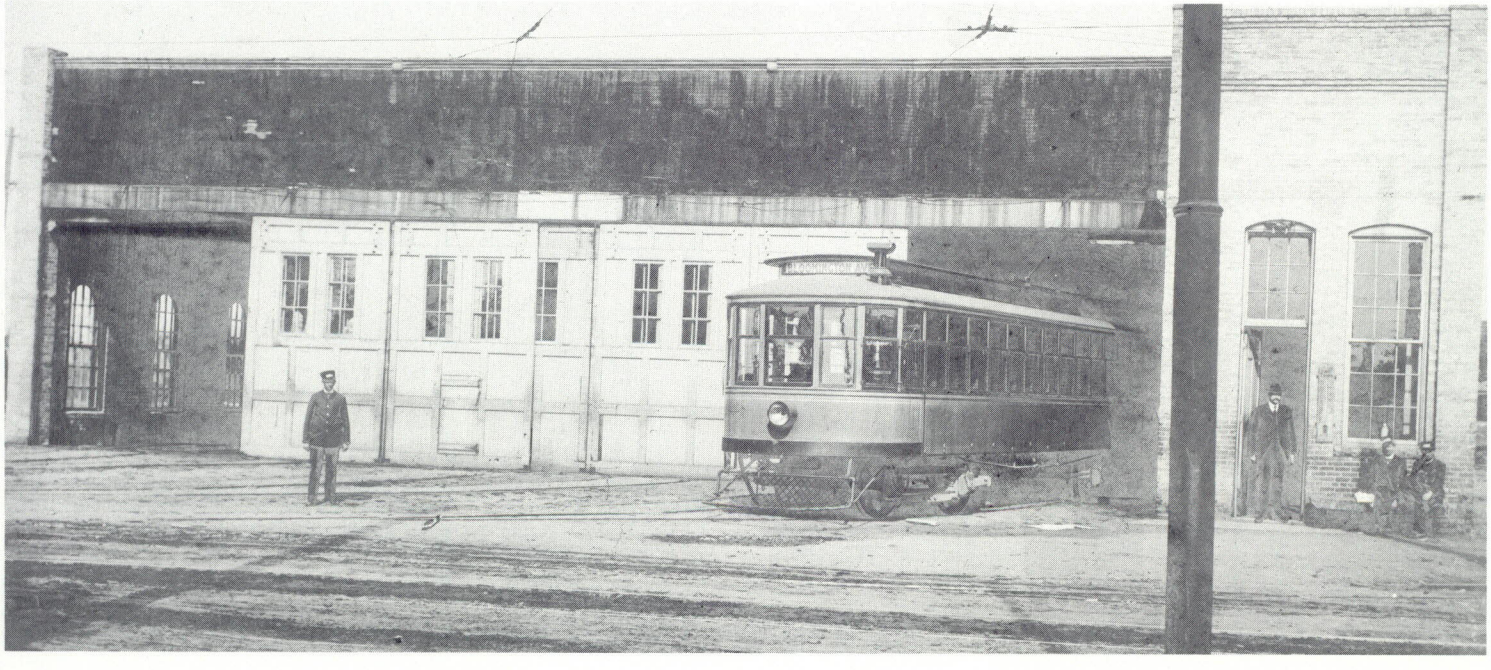


MINNEAPOLIS ST. RY.

31ST STREET STATION
1892



Above: East Side Station, Minneapolis, about 1901. (Edmund A. Brush; Minnesota Historical Society collection)
Below: Bloomington Station, Minneapolis. (Joe Hutchinson collection)

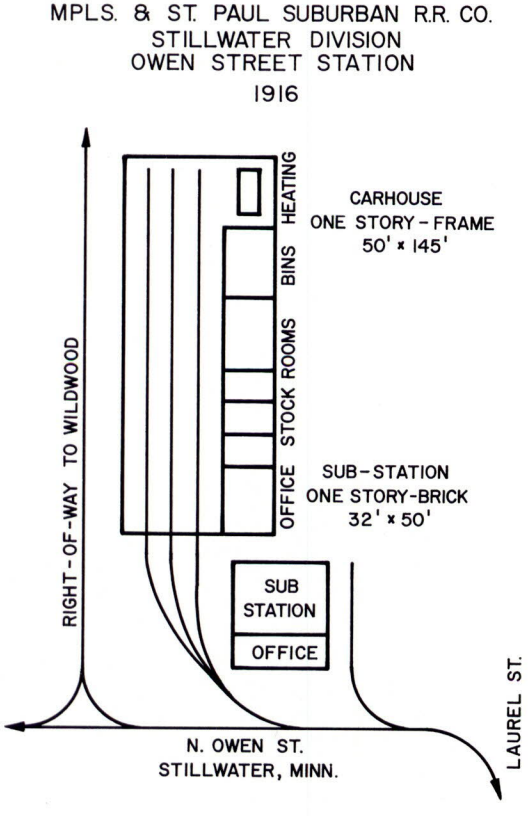


Car Stations and Carhouses – 1897

Operating stations and carhouses were: Bloomington, 31st Street, East Side, and Minnehaha in Minneapolis; Midway, Selby Ave., Smith Ave., Rice St., and 7th Street in St. Paul. Carhouses used only for storage of unused cars (including winter storage of open cars) were: 19th Ave., Lyndale, and 3rd Ave. N. in Minneapolis; and Greenbrier in St. Paul. Sometime after 1898, the Minnehaha carhouse, Minneapolis, and Rice St. carhouse, St. Paul, were taken out of service and used for car storage purposes only. The Lyndale carhouse was destroyed by fire July 7, 1906.

Owen Street Station – Stillwater

This frame structure was built in 1899 for operation of the street railway system in Stillwater and South Stillwater. We can only speculate as to why a structure not up to TCRT's normal high standards was erected. A company memorandum dated 1910 indicated the building was in poor condition and they were reluctant to store any of the high-speed suburban cars inside the structure due to the risk of fire. The work car, wire car, and snow plow used on the Stillwater Division were assigned here, as were one or two of the high-speed suburban cars. The building was apparently renovated as it continued in service until the last streetcars operated in Stillwater.



Disposition of remaining old carhouses

The 3rd Ave. N., Minneapolis, complex was superseded during 1903-1904 by completion of the new Main Steam Station and general office building at 11th St. and Hennepin Ave. It continued in use for car storage purposes for several years before it was sold. The building is in existence today, being occupied by the Colonial Warehouse Co.

The Smith Ave. carhouse, St. Paul, had been damaged by fire in October, 1892, and on July 19, 1899, the entire north half of the building was destroyed by fire together with sixty cars. It was used for car storage purposes only from 1907 onward. The remaining portion of the building was demolished in 1911.

Midway Station, St. Paul, was taken out of service in 1907. During October, 1908, the tracks were being removed, but its final disposition is unknown.

The Selby Ave. Station was also taken out of service in 1907. The property and building was eventually sold to the Citizens Ice Co.

The Rice St. carhouse was used for car storage purposes until at least 1911 but its ultimate disposition is unknown.

The disposition of other carhouses and properties is not known.

31st Street Shops – Minneapolis

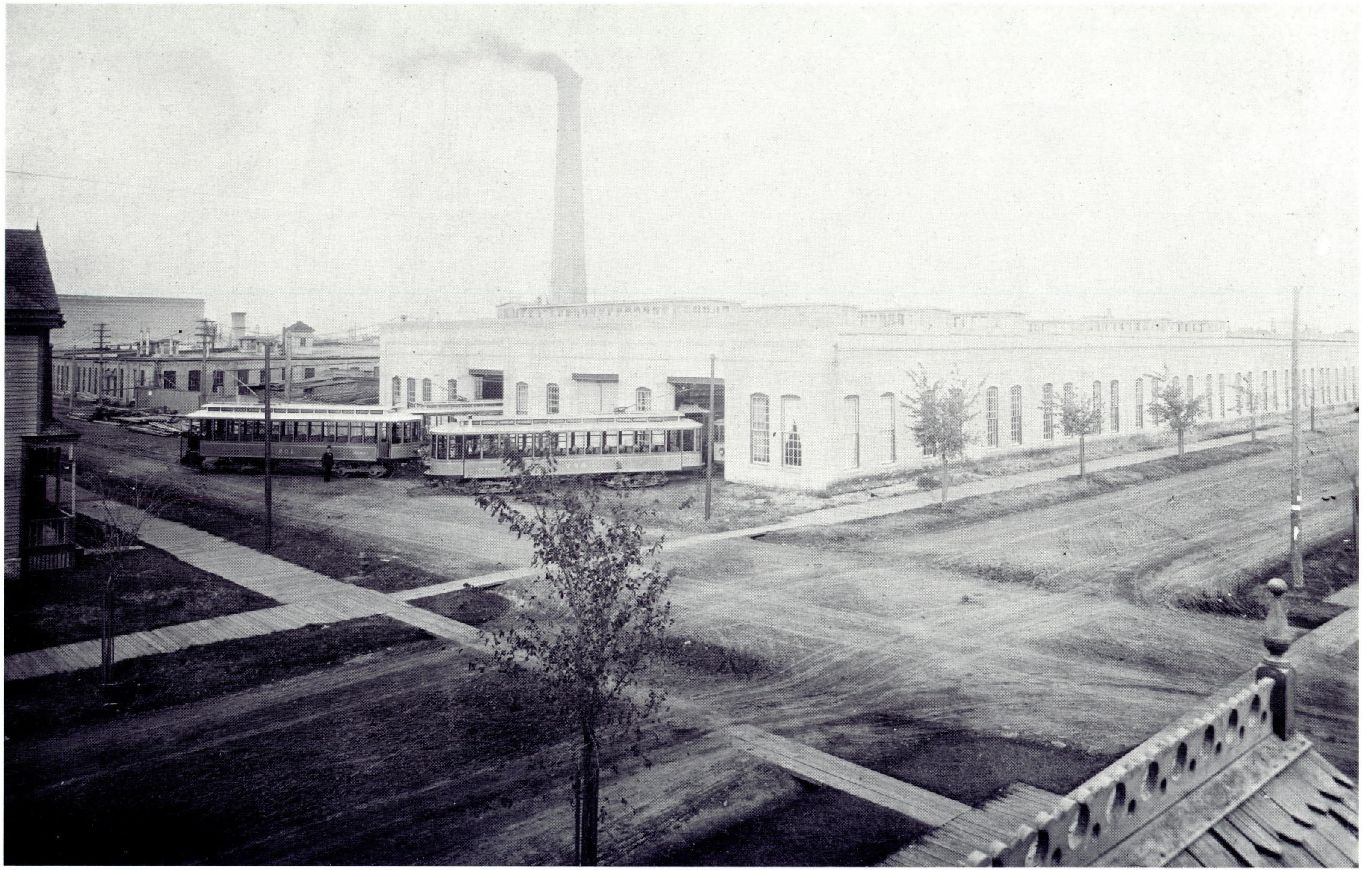
The erecting shop on the southwest corner of the property at 32nd St. and Blaisdell Ave. was completed in April, 1898, providing a fully-equipped car building facility with a capacity of eight cars per month. By 1904 both the repair and erecting shops had become inadequate to meet the company's needs. Both continued in service until replaced in 1907 by the newly completed Snelling Shops in St. Paul.

Snelling Station – St. Paul

Desiring to have increased capacity for car repairing and building in a location more advantageously situated with respect to the entire street railway system, 60 acres of land were purchased in 1904 at Snelling and University Avenues, St. Paul, "Midway" between the downtown sections of Minneapolis and St. Paul. A carhouse, substation, and centralized shops were planned on 40 acres at this location. The first track on the property was laid during 1904 and 1905. During 1906 construction was substantially completed on the carhouse-substation building. Snelling Station was opened for service on June 13, 1907, replacing the Midway, Smith Ave., and Selby Ave. Stations. (Operations at Smith Ave. Station were actually transferred to Snelling Station June 2, 1907.)

Above: 7th St. Station, St. Paul, about 1901. The cable slot rail of the eastbound track had not yet been removed. Car 882, left, has a glass deck roof destination sign "7th St." (white letters on black background), while car 785, right, carries a "White Bear & Stillwater" roof sign above the body side windows. (Edmund A. Brush; Minnesota Historical Society collection)

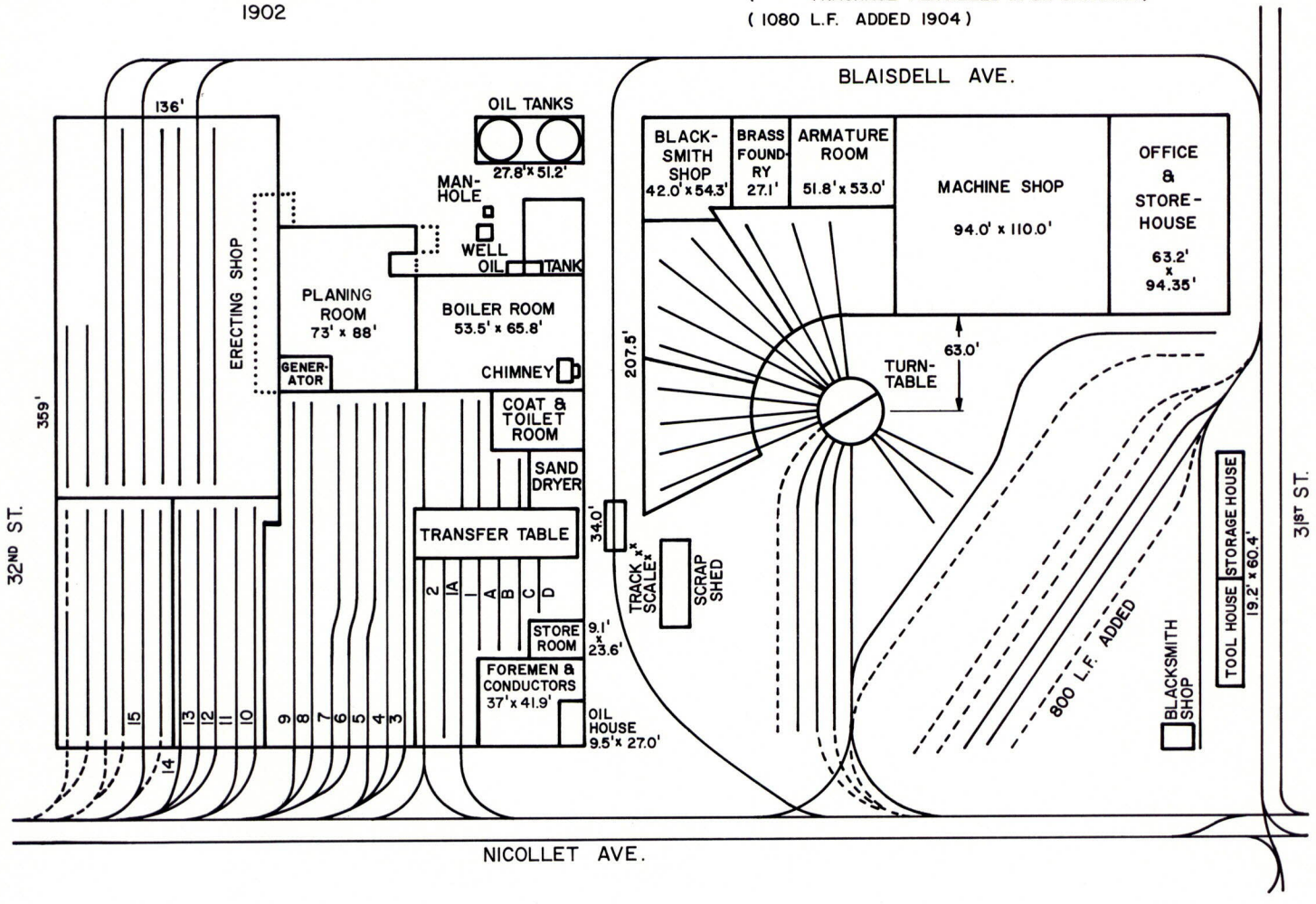
Below: Buildings at Owen St. Station, Stillwater, comprised the frame carhouse, left, and the substation, center. This photograph was taken August 10, 1932, the last day of operation on the "St. Paul-Stillwater" line. The lightweight car on the local "Wilkin St." line is turning on the wye prior to pulling in the carhouse. (John Runk; Joe Hutchinson collection)



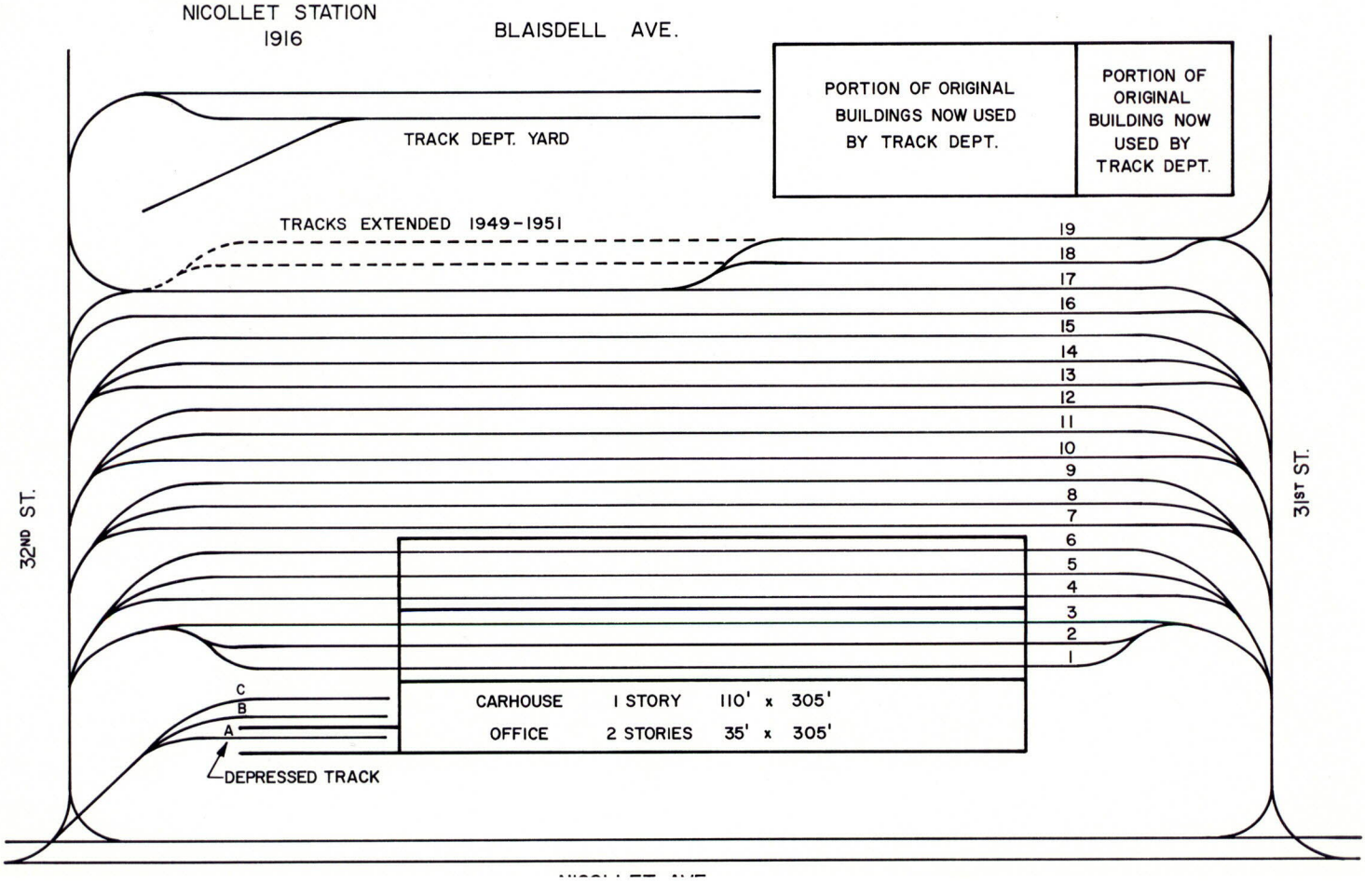
A rare 1899 photograph of the 31st St. Shops, Minneapolis, looking northeasterly from the intersection of 32nd St. and Blaisdell Ave. The powerhouse chimney rises above the erecting shop building. The repair shop, roundhouse and storehouse buildings are at the left center. Car 751, left, has Bemis M. T. trucks while 738, right, has Brill (Old) trucks. (Sweet Studios; Robert Bowes collection)

MINNEAPOLIS ST. RY.
31ST ST. STATION AND SHOPS
1902

(---- TRACKAGE PENCILLED IN ON ORIGINAL)
(1080 L.F. ADDED 1904)



MINNEAPOLIS ST. RY.
NICOLLET STATION
1916



Car Station construction and improvements

During 1910 the track layout at East Side Station, Minneapolis, was re-arranged and the office portion of the building rebuilt.

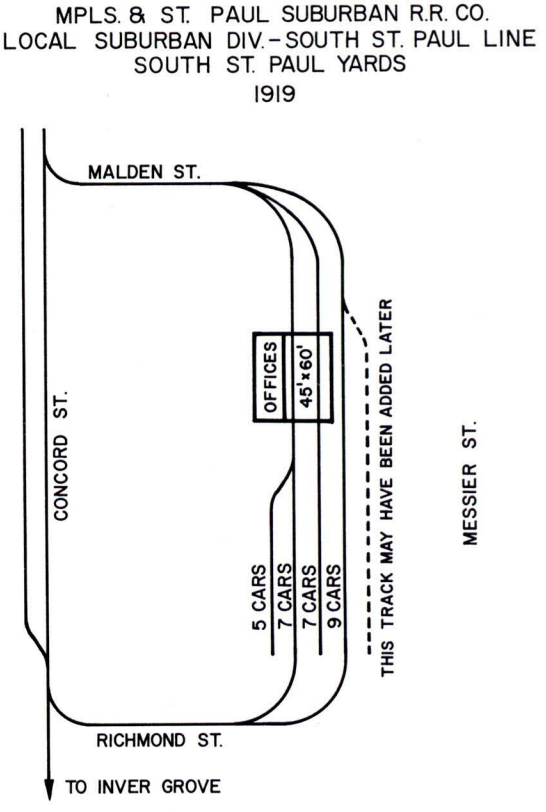
E. 7th St. Station, St. Paul, was completely rebuilt sometime after 1902, probably about 1910-1912. The original buildings were demolished and a new, re-designed carhouse and yard were built. About 1919 it was re-named Duluth Ave. Station.

Lake Street Station, Minneapolis, was built during 1910 on E. Lake St. at 21st and 22nd Avenue So., as a much larger and better located facility than the limited capacity and poorly located Bloomington Station. Lake St. Station was opened November 5, 1910. The final operations from Bloomington Station took place January 1, 1911. Ultimate disposition of the latter is unknown.

Work began April 5, 1911, demolishing the 31st St. Station, Minneapolis, buildings to make space available for a completely new and re-designed operating station. The new building and yard tracks were opened for operation in November, 1912; thereafter the facility was designated Nicollet Station. The original boiler room building remained to supply heat for all the buildings on the premises, while the roundhouse and office-storehouse buildings were used by the Track Dept. for maintaining the Minneapolis system. In 1916 the roundhouse building and boiler room building (replaced by a more compact and efficient heating plant installed in the carhouse building) were demolished and yard storage tracks extended to occupy the vacated space. The former machine shop-office-storehouse buildings remained in use by the Track Dept. until the end of streetcar operations.

North Side Station (North Minneapolis Station), Minneapolis, located on Washington Ave. N. between 25th and 26th Avenues N. was built during 1914 to relieve the operating load on Lake St. Station. The station opened October 25, 1914, with all its cars being transferred from Lake St.

A small carhouse and storage yard was constructed during 1919-1920 in South St. Paul off Concord St. between Richmond St. and Malden St. Armour & Company had opened its meat packing plant in 1919 which, with the existing Swift & Company plant, produced considerable rush hour traffic. To eliminate much deadhead mileage for rush hour cars, this small facility was constructed, and named the South St. Paul Yards. It opened for service on February 25, 1920.

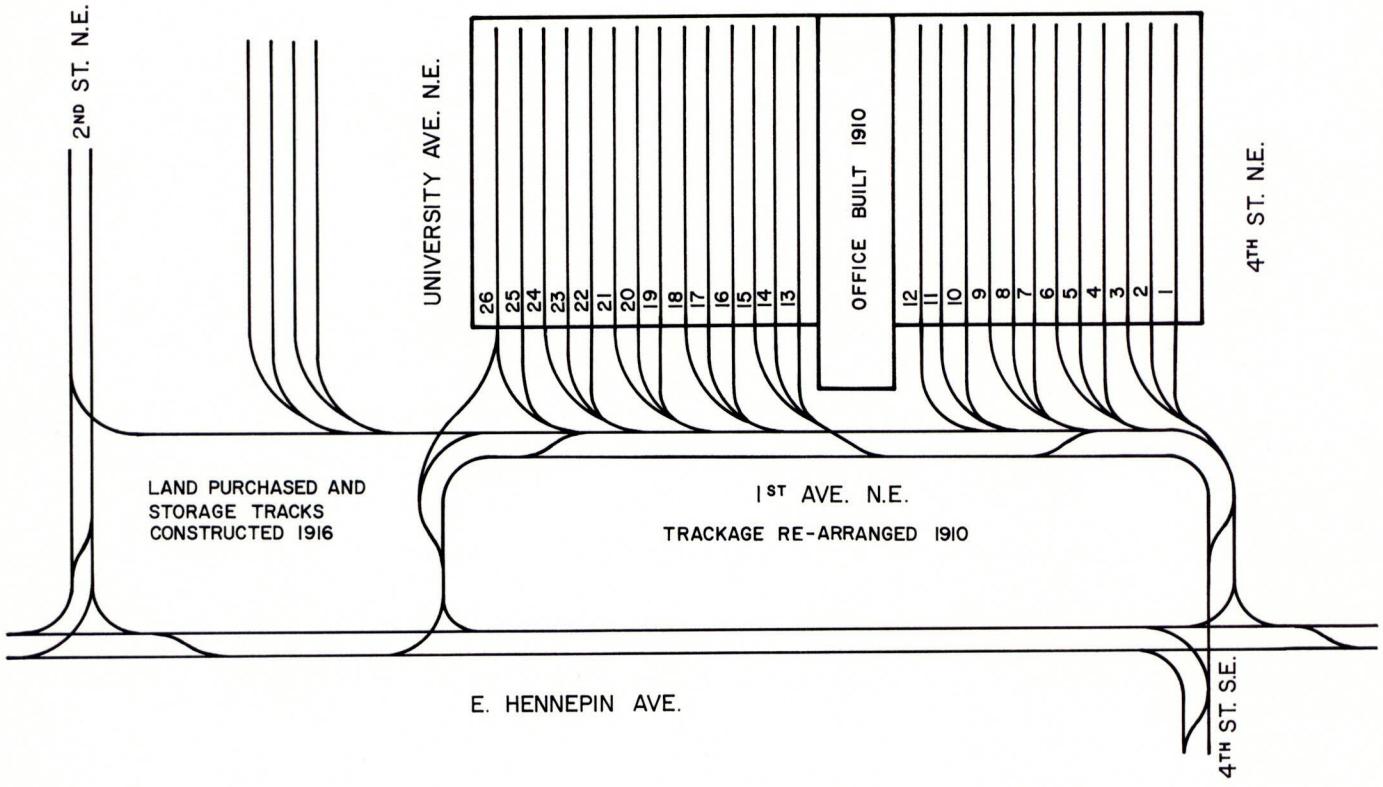


The track layout at Snelling Station, St. Paul, was substantially modified during the summer of 1949 in the last major construction project. The carhouse entrance and exit trackage to and from University Ave. was relocated, and the ladder track switches re-arranged accordingly to eliminate traffic congestion at the intersection of Snelling and University Avenues.

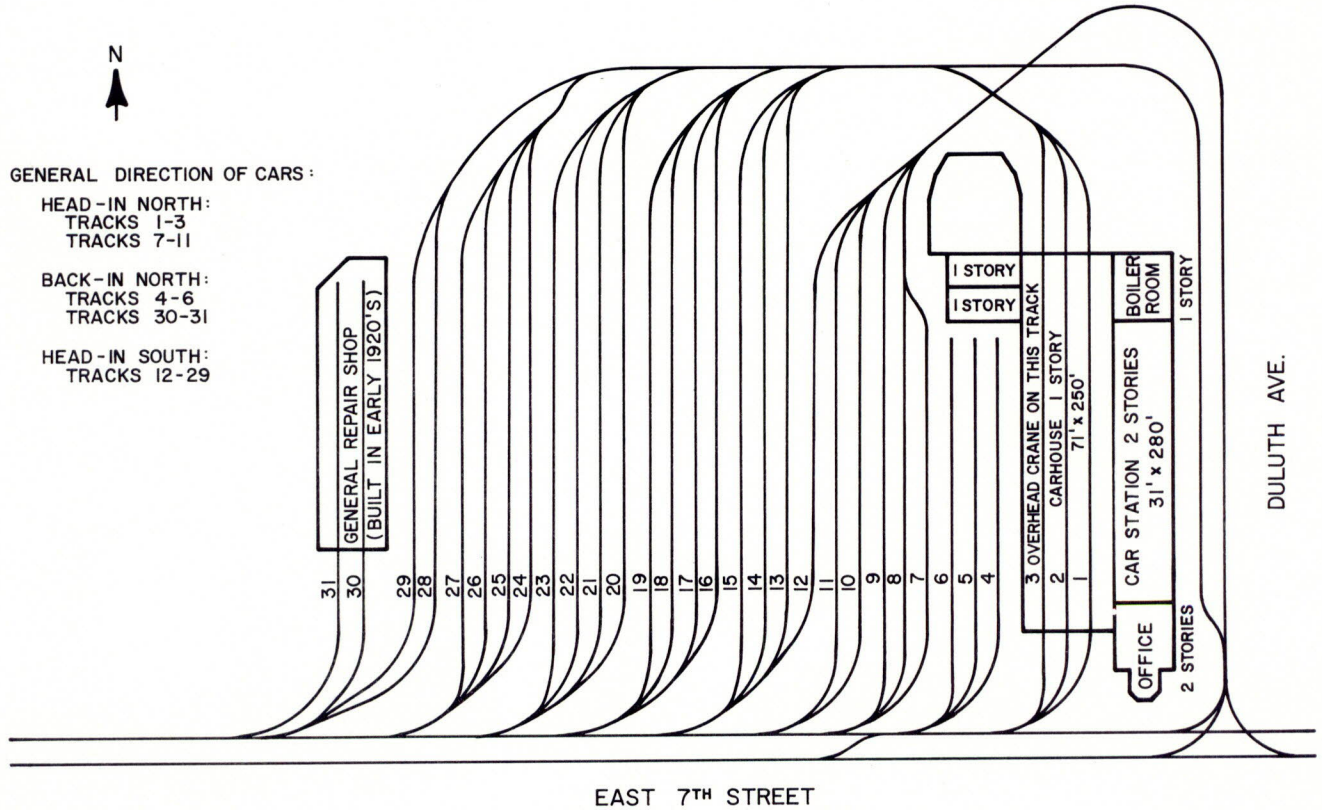
Capacity of Car Stations – 1932

Station	Carhouse	Yard	Total
Nicollet	36	122	158 cars
East Side	153	20	173 cars
Lake St.	36	144	180 cars
North Side	36	112	148 cars
Snelling	42	224	266 cars
Duluth Ave.	12 (old) 6 (new)	116	134 cars

MINNEAPOLIS ST. RY. EAST MINNEAPOLIS "EASTSIDE" STATION 1916 AS REBUILT

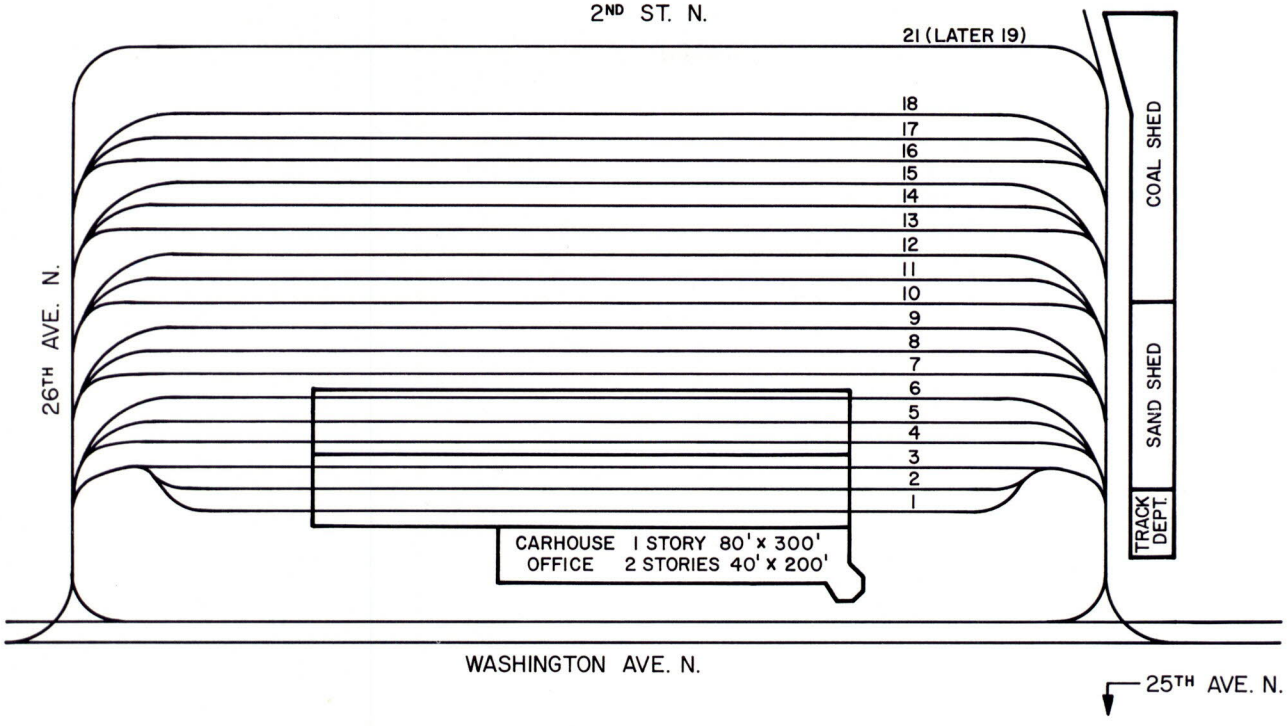


ST. PAUL CITY RY. DULUTH AVE. STATION AS REBUILT

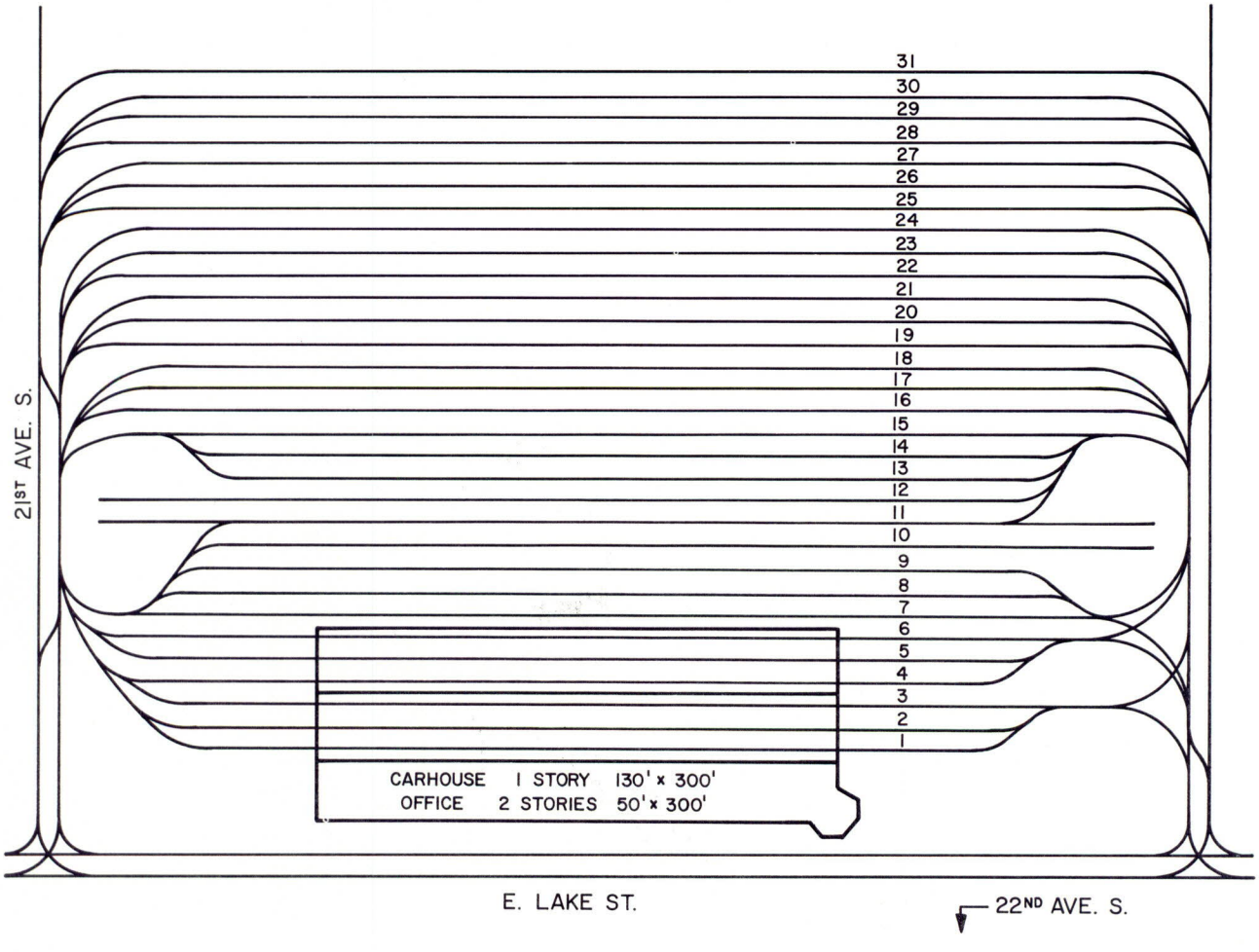


(REBUILDING OCCURRED SOMETIME DURING THE 1902-1912 PERIOD)

MINNEAPOLIS ST. RY. NORTH MINNEAPOLIS "NORTHSIDE" STATION



MINNEAPOLIS ST. RY. LAKE ST. STATION 1916



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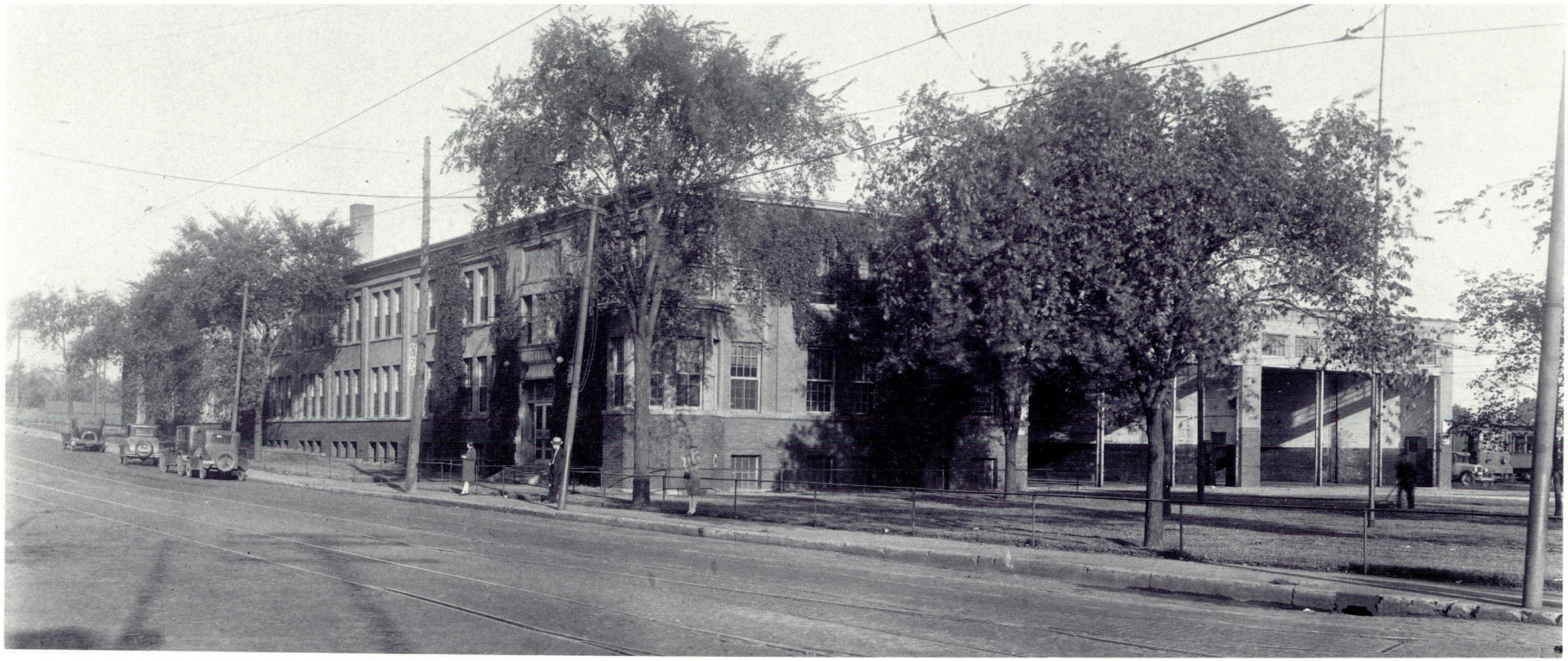
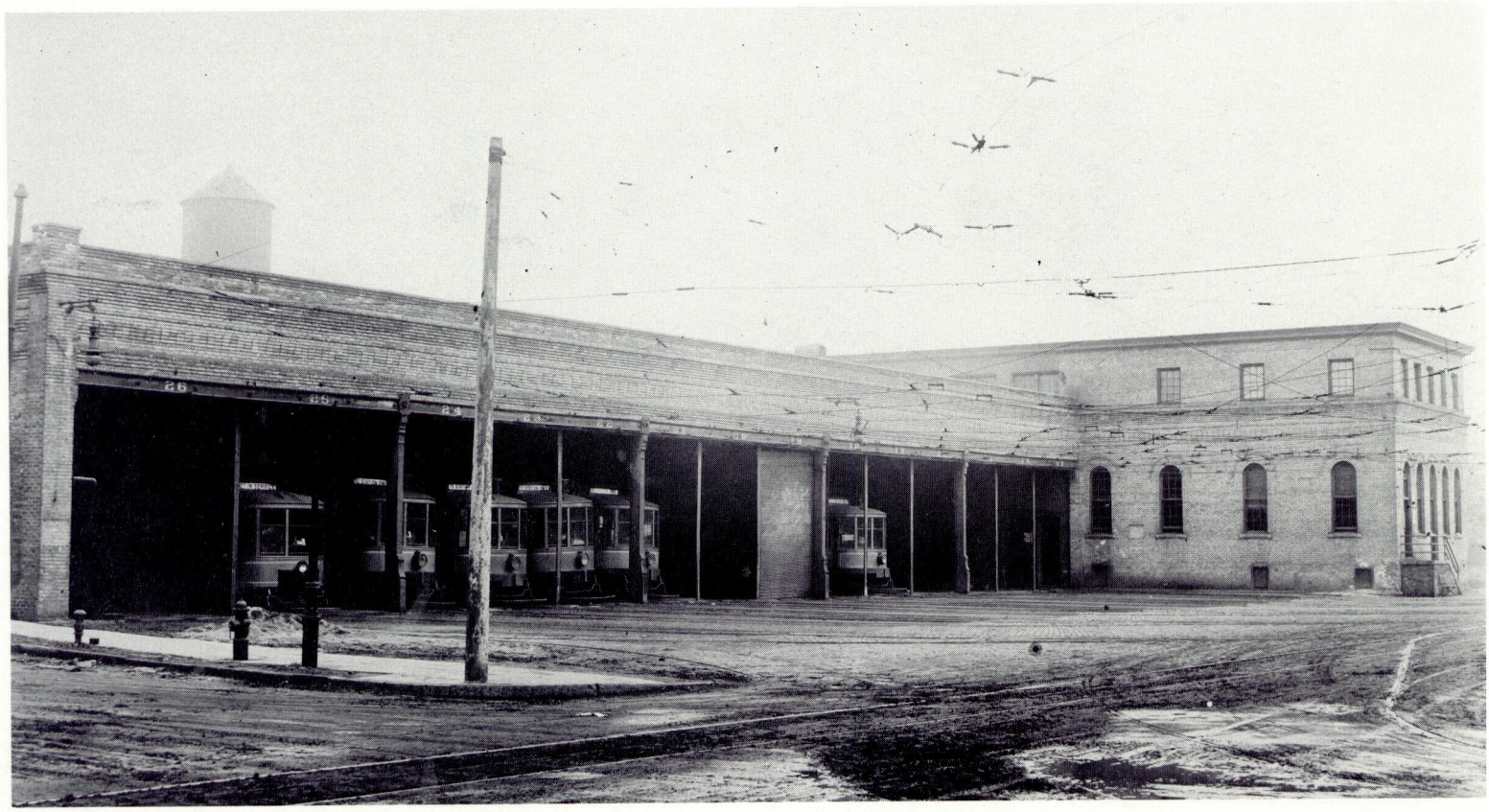
Nicollet Station, Minneapolis, as rebuilt during 1911-1912. The roundhouse and powerhouse can be seen to the right center. Baggage car 34 is on track 2 in the carhouse. (Minnesota Historical Society collection)

Facing Page

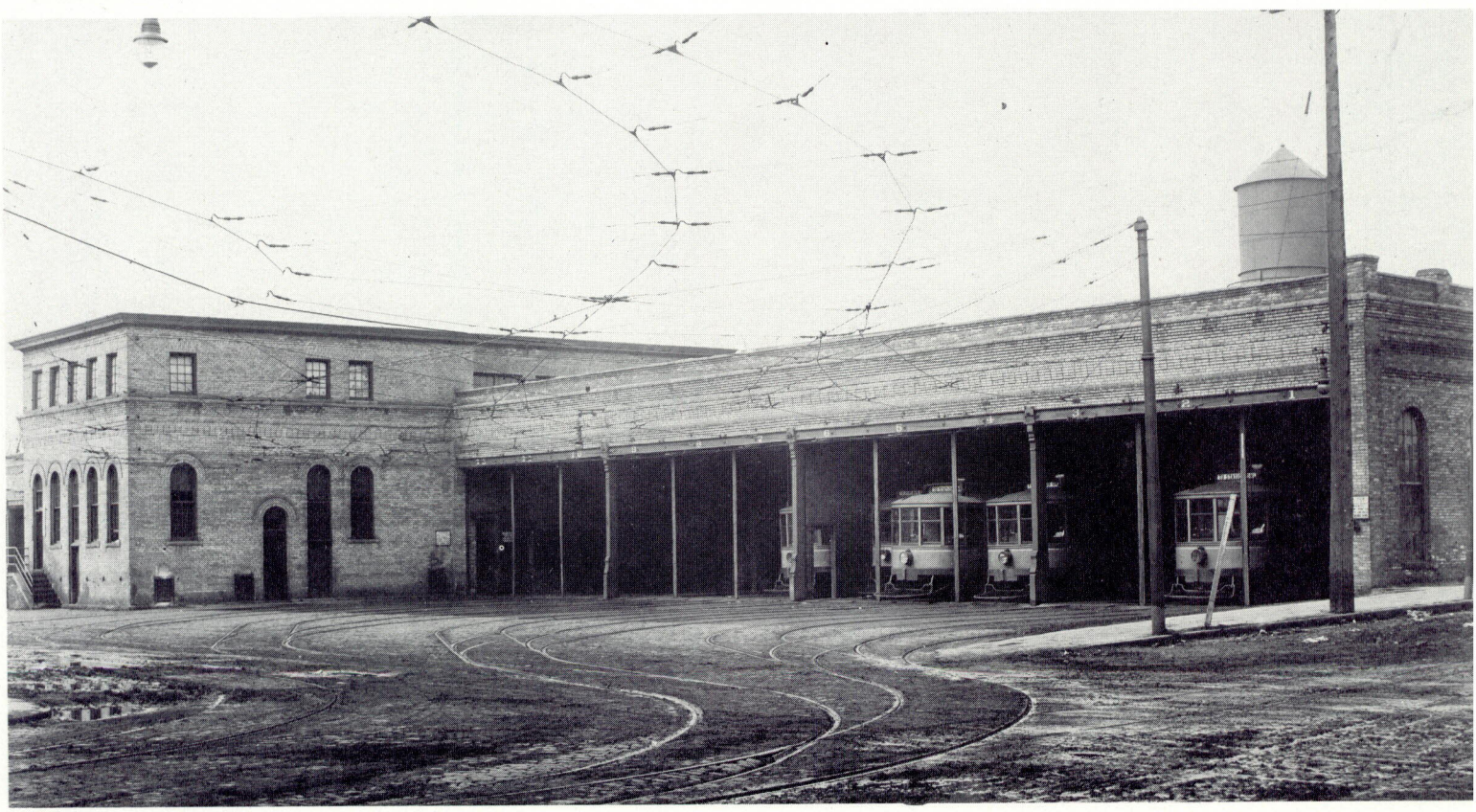
Above: Lake Street Station, Minneapolis, about 1928.

Below: North Side Station, Minneapolis, about 1928. (Both photographs TCRT)





Two views of East Side Station, Minneapolis, after rebuilding; the top photograph was taken from University Ave. N.E. while the bottom was taken from 4th St. N.E. (TCRT)



Snelling Shops – St. Paul

Walter J. Smith, formerly with the Duluth St. Ry., became TCRT's Master Mechanic in 1906. An autocratic individual, his philosophy was to avoid buying anything that it was possible to make yourself. Apparently this influenced the design and equipping of the shops. All of the buildings on the property, shops and carhouse, were constructed of brick built upon reinforced concrete foundations; columns, floors and roofs were also of reinforced concrete. The cement bricks and hollow cement blocks used in the construction were manufactured on the premises. During 1906 construction was substantially completed on the machine shop, erecting shop, pipe shop (later referred to as the blacksmith shop) and powerhouse, carpenter ("mill") shop, and dry kiln.

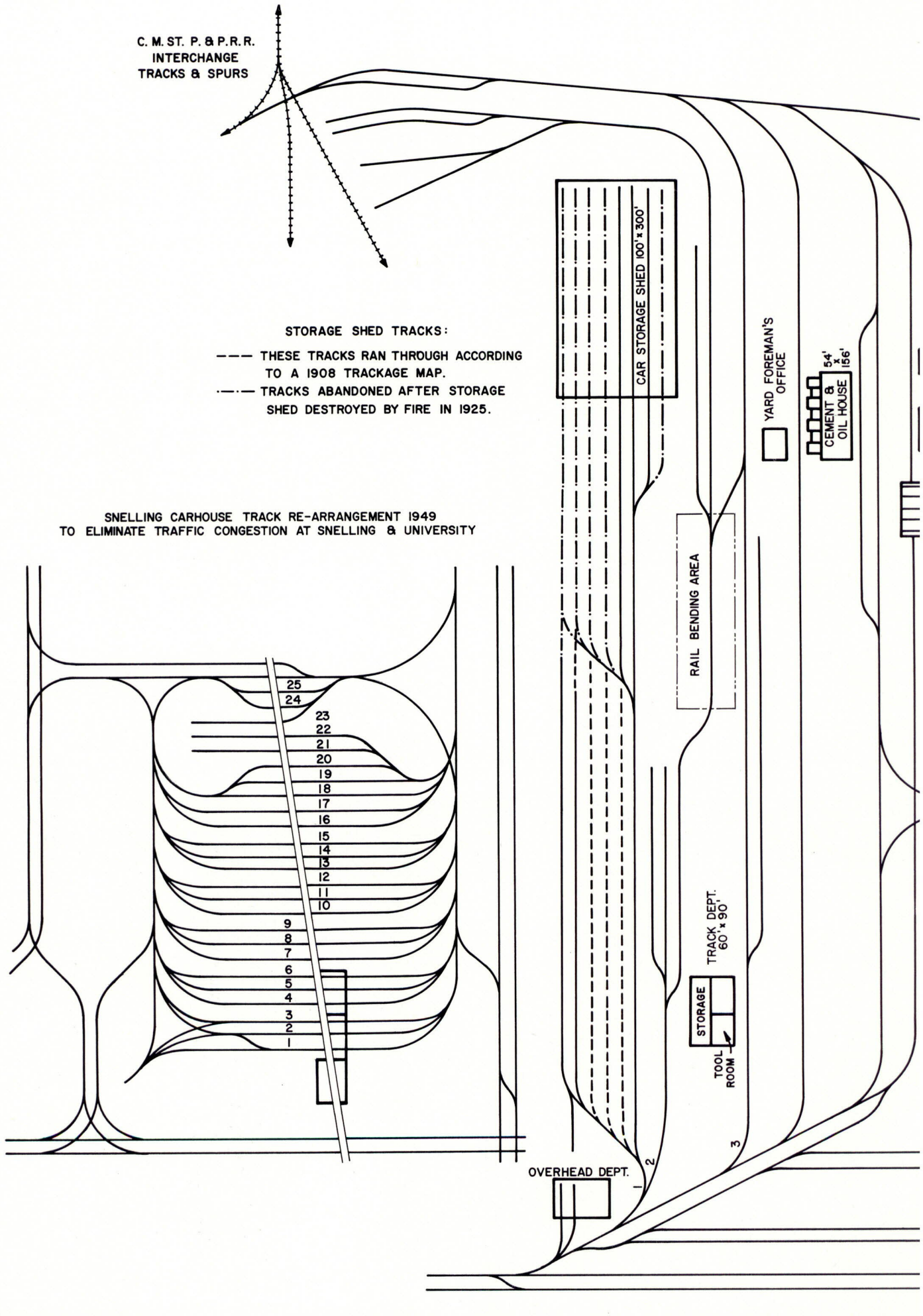
Installation of machinery began in January, 1907. The move from 31st St. Shops to Snelling took place during August and September, 1907, and the completed shop facilities at Snelling went into service during September and October, 1907. All buildings were conveniently located with reference to economically carrying on the work of manufacturing and repairing cars and car equipment with the least amount of handling. Each piece of work followed a prescribed regular course from building to building until it was turned out finished and ready for use. The transfer table could handle steam railroad freight cars directly into any of the buildings; it took power from a wire carried against the side of the transfer table pit protected by a projecting ledge of concrete with a wooden guard. Along each side of the transfer table pit were 30' wide planked platforms (later replaced with concrete) to allow trucking of materials or work from one shop to another without using the transfer table. The machinery and tools in each shop were the most modern available and all were driven by electric motors; in most cases each machine was driven by its own 230 volt D.C. motor. Machines of less than 3 h.p. were grouped together.

The car storage shed and the foundry were both completed in 1908. The latter was equipped to manufacture all of the company's castings (brass, steel, and gray iron) except for wheels and malleable iron items. Approximately 500 to 550 persons were employed at the Snelling Shops during this time.

Additional shop buildings were constructed during the next five years. These were the storehouse (1909), lumber shed (1910), general repair shop (1912), forge and structural shop (1912), cement and oil house (1913); the transfer table was rebuilt with a new operator's cab and overhead trolley current collection (after 1913).

The wheel shop was built during 1925, and in August of that same year the car storage shed was destroyed by fire together with several stored cars.

Aerial photograph of the Snelling Shops, St. Paul, taken about 1925, looking toward the northeast. (TCRT)


C. M. ST. P. & P.R.R.
INTERCHANGE
TRACKS & SPURS
STORAGE SHED TRACKS:
--- THESE TRACKS RAN THROUGH ACCORDING TO A 1908 TRACKAGE MAP.
·—·— TRACKS ABANDONED AFTER STORAGE SHED DESTROYED BY FIRE IN 1925.
SNELLING CARHOUSE TRACK RE-ARRANGEMENT 1949
TO ELIMINATE TRAFFIC CONGESTION AT SNELLING & UNIVERSITY
CAR STORAGE SHED 100' x 300'
YARD FOREMAN'S OFFICE
CEMENT & OIL HOUSE 54' x 156'
RAIL BENDING AREA
TRACK DEPT. 60' x 90'
STORAGE
TOOL ROOM
OVERHEAD DEPT.
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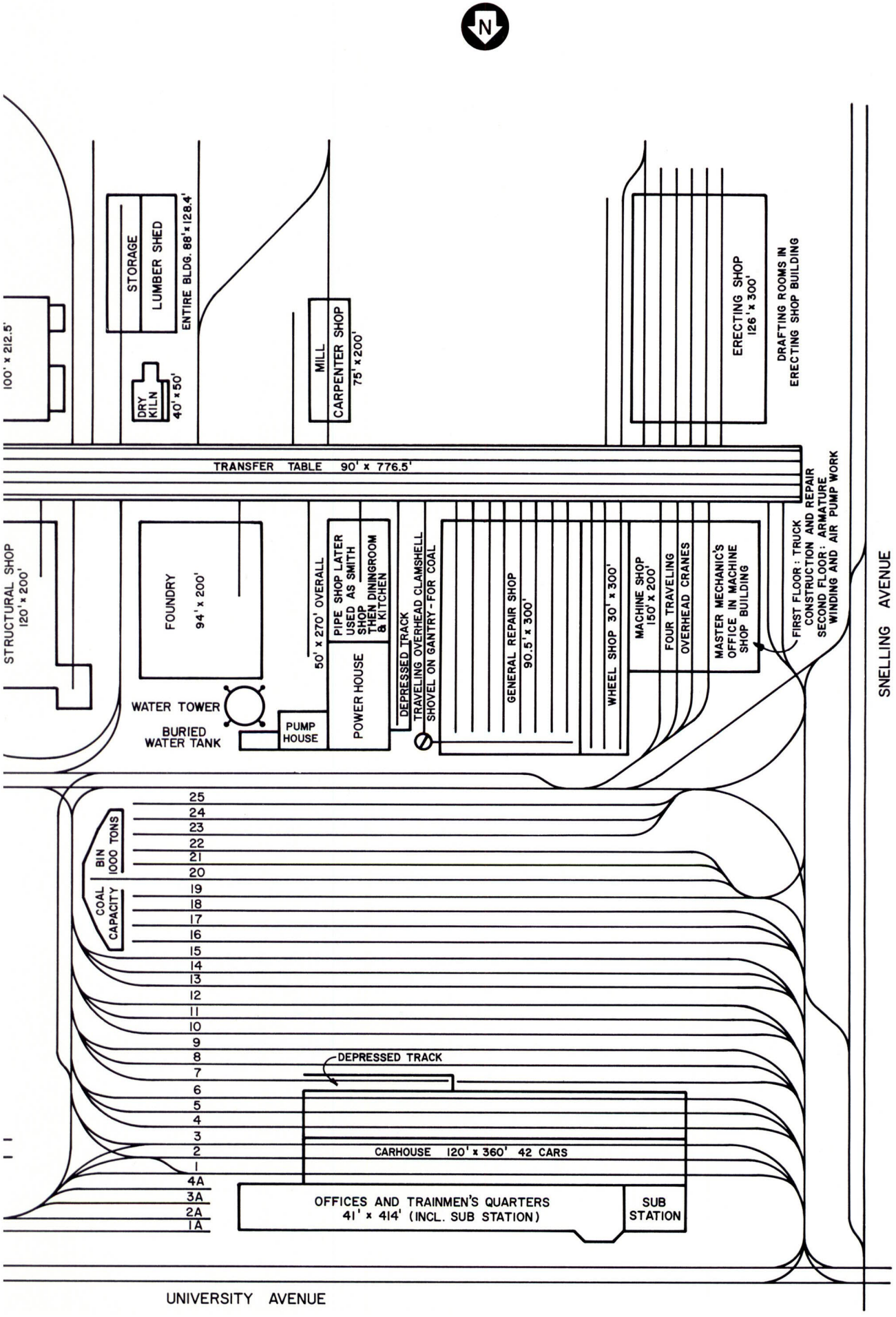
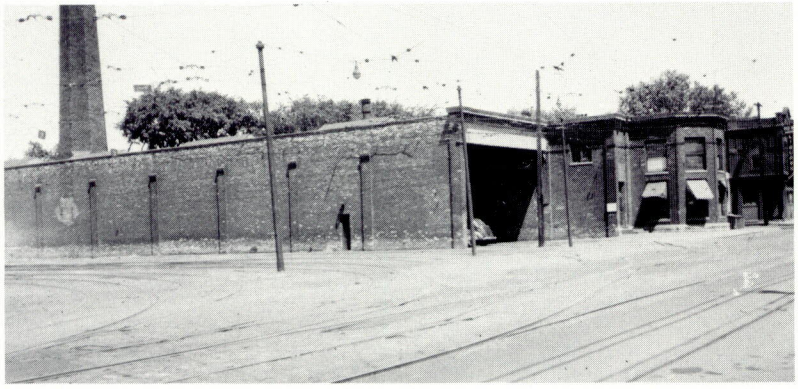
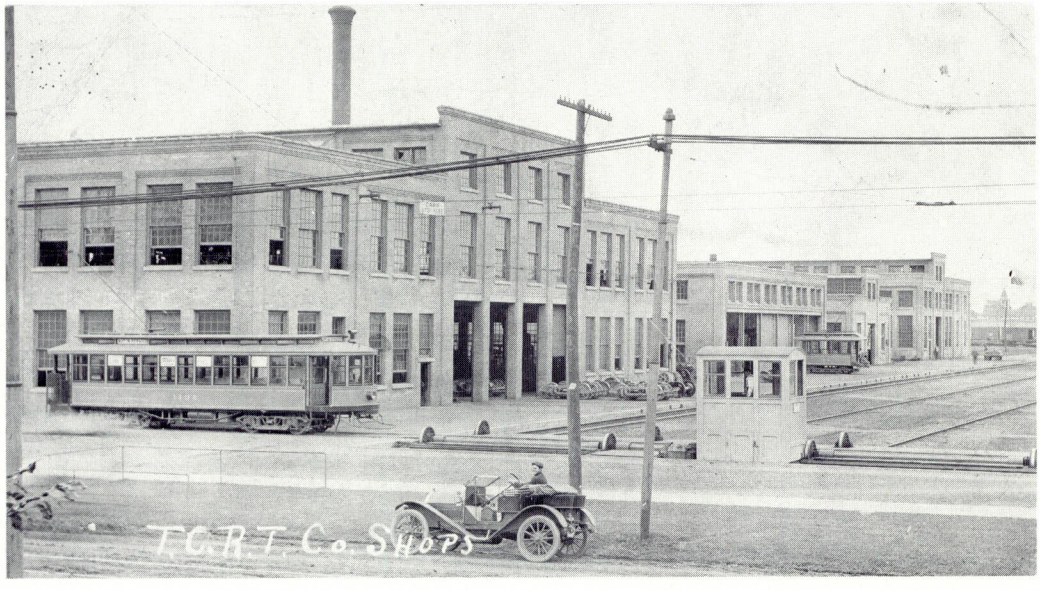
SNELLING SHOPS AND CARHOUSE

AUGUST, 1921





Duluth Ave. Station, St. Paul, as it appeared shortly after being removed from service in 1952. (Joe Hutchinson collection)



Above: A view of the Snelling Shop buildings north of the transfer table, taken about 1910-1911. (TCRT)

Below: Another view of the same area as it appeared about 1925-1926. (TCRT)

Last use and disposition of the Car Stations

The last streetcars operated out of the South St. Paul Yards July 13, 1932, and the building was eventually sold. It was used for many years as a repair garage for LCL Transit Inc., an over-the-road trucking firm.

Owen St. Station, Stillwater, operated the last service on the street railway system in Stillwater on September 10, 1932. Presumably the building was demolished and the property sold. The substation building on the property is still in existence today, used as a residence.

Duluth Ave. Station, St. Paul, ceased operating May 17, 1952. The buildings were demolished and the property sold.

On July 10, 1953, the last streetcars operated out of North Side and Nicollet Stations, Minneapolis. Each was rebuilt into a bus garage and is in use as such today. The Nicollet carhouse building now houses the offices of the Transit Operating Division of the Metropolitan Transit Commission.

Lake St. Station, Minneapolis, and Snelling Station. St. Paul, had their last streetcars operate November 28, 1953. At Lake St., the buildings were demolished and the property sold to allow for construction of a shopping center. The carhouse and yard tracks at Snelling Station were used in the process of selling and scrapping the passenger and service equipment until this work was completed in 1954.

East Side Station, Minneapolis, one of the first major car stations constructed, had the dubious distinction of being the last to remain in service. The final streetcar pulled in during the early morning hours of June 19, 1954. The building was sold and still exists today, occupied by Superior Plating Inc.

The Snelling Shops were used in the final dismantling and selling of the passenger and service equipment. When this work was completed in 1954, the land occupied by the carhouse and shop buildings north of the transfer table pit were sold and then demolished for construction of a shopping center. The buildings south of the pit were rebuilt into a bus garage and repair shops and are in use as such today by the Metropolitan Transit Commission.

Office Buildings

Two office buildings were constructed to identical designs, one in Minneapolis at 11th St. and Hennepin Ave., and the other in St. Paul at College Ave. and Wabasha St. Each building contained a substation, and was constructed of pressed brick with terra cotta trimmings; roof and floors were of steel and concrete. Each building measured 80' x 150'; the Minneapolis building was three stories high (56') while the St. Paul building was two stories high (44'). Construction began in 1903 and was completed in 1904. The Minneapolis offices were moved from 200 3rd Ave. N. to 1 S. 11th St. May 21, 1904. A fourth story was added to the Minneapolis building sometime after 1916 but before 1926. The St. Paul building housed the offices of the St. Paul City Ry., while the Minneapolis building housed the offices of the Minneapolis St. Ry. as well as those of the Twin City Rapid Transit Co. and its other subsidiaries. (Offices of the Transit Supply Company were located at the Snelling Shops, the Master Mechanic's office in the general repair shop building, and the Purchasing Agent's office in the storehouse building.

After the end of streetcar operations, the Minneapolis building was demolished, the property sold, and the offices moved to the Nicollet Garage. The St. Paul building was sold and still exists today as an office complex.

The Snelling Station car storage yard, looking west, showing a demonstration of the fire protection system. (TCRT)

Above: The Minneapolis general office and substation building on the southeast corner of 11th St. and Hennepin Ave.
Below: The St. Paul office and substation building on the west side of Wabasha St. at College Ave.
(Both photographs A. D. Roth; Robert Bowes collection)

5. OPERATIONS

Operation of the component companies of TCRT was spread over a period of eighty-two years and involved constant change under an imposing variety of circumstances. Lack of records and the tremendous volume of changes and nature of revisions makes it impossible to compile any comprehensive, meaningful discussion of operational methods, procedures and details over the years. Consequently it has been necessary to arbitrarily choose certain facets of the operations and select time periods for which the best data was available. The lack of continuity resulting is unfortunate but unavoidable under the circumstances.

The Operating Organization

The President was the chief executive officer, formulated policy, authorized methods and procedures in conducting business affairs, and performed other related functions. The Vice President acted in place of and for the President in directing the active management and conduct of the business of the component companies. The 2nd Vice President acted only in the absence of both the President and Vice President. Staff officers were the Auditor (Controller), Treasurer, and 3rd Vice President, the latter being responsible for the Claim Departments (Minneapolis and St. Paul) and the General Counsel (who headed the Legal Department), and was the representative of the component companies in all tax matters. Operating officers, reporting to the Vice President, were Engineer of Power, Engineer of Maintenance of Way, Master Mechanic (Superintendent of Equipment), General Superintendent, General Passenger Agent, General Storekeeper, and Superintendent of Parks.

The Engineer of Power was responsible for the generation and distribution of electrical power, including the repair and maintenance of buildings and machinery. This comprised Power stations, Substations, Underground lines, Overhead lines, and the company internal telephone system. This was referred to as the Power Department.

The Engineer of Maintenance of Way was responsible for the construction and maintenance of all roadbed, tracks, and appurtenances, including right-of-way, bridges, fences and docks. The Track Dept., as it was called, also was in charge of supplying sand to the car stations and sand boxes at various points on the system.

The Master Mechanic was responsible for the construction and maintenance of all buildings (except those of the Power Dept.), boats, and rolling stock, and all related equipment and appliances. This included the General Shops, Station shops, Rolling Stock Inspectors, Fire Marshall and the Building Dept. The Mechanical Department, as it was referred to, also supervised the wrecking cars in cleaning up wreckage and obstructions, subject to the rules of the Operating Dept.

The General Superintendent was responsible for the operation of all train and boat service, the employment and training of men for this service, the preparation of schedules, and the supervision of the main office buildings and car station trainmen's club rooms. This was called the Operating Department, headquartered at the General Office Building in Minneapolis.

The General Passenger Agent was in charge of all advertising and publicity, supervised the operation of the telephone system, and handled all complaints. He also made arrangements for all chartered cars and boats in coordination with the General Superintendent.

The General Storekeeper (Purchasing Agent) was responsible for all purchases and in charge of all supplies and storehouse stock. His domain was the Storehouse located at the Snelling shops which operated the Stores Dept. supply car on a regular schedule bringing parts, material and supplies to the car stations. This department was also responsible for supplying coal for car heating to the stations as well as placing, supplying and removing the coal boxes at various points on the system.

The Superintendent of Parks was in charge of the operation of all amusement resorts operated by the company. He also directly managed the Trainmen's Club Rooms, in this case reporting to the General Superintendent.

The Operating Department

Officers reporting to the General Superintendent were the Minneapolis Division Superintendent, St. Paul Division Superintendent, Superintendent of Schedules, and Superintendent of Employment. The office buildings at 11th and Hennepin, Minneapolis, and College and Wabasha, St. Paul, were under the supervision of the Gen. Supt., the janitors receiving their instructions from and reporting necessary repairs to him. The Gen. Supt. made the assignment of all passenger and service cars to the various car stations.

As of January, 1916, the departmental organization was as follows:

The following lines constituted the Minneapolis Division: All local lines in the City of Minneapolis; Como-Harriet-Hopkins inter-city line; Minnetonka and Deephaven suburban lines; Robbinsdale and St. Louis Park suburban line and Boat service on Lake Minnetonka.

The following lines constituted the St. Paul Division: All local lines in the City of St. Paul; Minneapolis and St. Paul inter-city line; Selby-Lake inter-city line;

Car 571 northbound on 1st Ave. So. at 6th St., Minneapolis, about 1899-1900. The domed building with cupola in the right background housed the great Civil War Cyclorama. (Robert Bowes collection)

Snelling-Minnehaha inter-city line; Stillwater suburban line; White Bear and Mahtomedi suburban lines; Stillwater local lines and South St. Paul and Inver Grove suburban line.

Each of these divisions was under the direction of a Division Superintendent, headquartered in the Minneapolis and St. Paul office buildings. They were responsible for the efficient and successful operation of all lines within their Divisions according to the approved schedules. Reporting to the Division Superintendents were the Station Foremen, Boat Foreman, District Supervisors, Switchmen, and Trainmen (Motormen and Conductors). At the Lake Street Station in Minneapolis, from which were operated the "Selby-Lake" and "Snelling-Minnehaha" inter-city lines, the St. Paul Division Superintendent had full authority on matters relating to those two lines and the trainmen assigned to them; he dealt directly with the Station Foreman.

The two Divisions were divided into Operating Districts, consisting of a group of lines, each under the direction of a District Supervisor who was assisted by several Line Inspectors. On the suburban lines there were Train Dispatchers in addition to the Line Inspectors, the Minneapolis Dispatcher being located at the ticket office at 6th and Hennepin, and the St. Paul Dispatcher at the 7th St. Station. The District Supervisor was required to closely study traffic conditions on his lines, make recommendations for extra service in ample time for unusual travel, see that approved schedules were strictly maintained, follow up on the training of new trainmen, investigate accidents, be responsible for safe and proper operation of chartered trains, and during the winter months was responsible for keeping lines clear of snow and ice and had direction of the snow plows. However they had no authority over the car stations.

The Minneapolis Division was divided into these Operating Districts and lines:

East Side District
- Como-Harriet Hopkins
- Oak & Xerxes
- Hennepin Local
- Kenwood & Johnson
- Western & 2nd St. N.E.
- Bryn Mawr
- Minnetonka-Deephaven
- Robbinsdale & St. Louis Park
- Calhoun Beach

Nicollet District
- 54th St. & Col. Heights
- Marquette & Grand
- Monroe & Bryant
- 4th Ave. S. & 6th Ave. N.

Lake Street District
- Plymouth & Bloomington
- Minnehaha Falls
- Lake St. to 36th Ave. So.
- Franklin Ave.-11th St.
- East 25th St.

North Side District
- Chicago & Fremont
- Chicago & Penn
- Lake Nokomis-Camden
- Broadway & 20th Ave. N.
- Cedar Ave. Extension

The St. Paul Division was divided into these Operating Districts and lines:

Interurban District
- Minneapolis & St. Paul
- Selby-Lake
- Snelling-Minnehaha
- Fort Snelling Stub

Snelling District
- Selby Avenue
- Merriam Park
- Grand Avenue
- Payne-Phalen
- Hamline-Union Depot
- Como Local
- Dale & Forest
- Western & So. Robert

Seventh Street District
- Jackson & Stryker
- Rondo & Maria
- Burns Ave. Extension
- Rice-South St. Paul-Inver Grove
- Seventh Street
- Miss. & Cherokee Hts.
- St. Clair-Hope
- Snelling Ave.-E. 7th St.

Stillwater District
- St. Paul & Stillwater
- Wildwood
- White Bear
- Mahtomedi
- Hazel Park
- Owen Street
- South Stillwater

At important points on the system Starters were stationed. They reported directly to the Division Superintendent. Their duties consisted of expediting the movement of cars through congested districts, handling emergencies that arose in their vicinity, and cooperated with other Starters in case of any general tie-up affecting operation in the loop district. At Hennepin and Washington, Minneapolis, and at Seventh and Wabasha, St. Paul, starters were on duty at all hours. At the headquarters of each Starter a supply box was maintained containing a stock of parts, supplies, chains, etc., for use in emergencies.

At important intersections Switchmen were stationed during certain hours of the day as required to expedite movement of the cars. They reported to whomever the Div. Supt. designated.

Station Foremen had general supervision over the trainmen and other Operating Dept. employees at the car stations and were responsible for compliance with all rules, regulations and special orders. They were also responsible for the general appearance and safety of the station. The Day Station Foreman was responsible for the station twenty-four hours per day, the Night Foreman reporting to and receiving instructions from him. The cleaning of curves, switches and tracks leading from stations to main lines, as well as storage tracks at the stations, and in winter the removal of snow from the station properties, was under the jurisdiction of the Track Dept. Maintenance of all rolling stock, car cleaning, cleaning and banking of fires, handling of tail lights and signal lights for suburban trains, and the maintenance of station buildings, including the heating plant and watchman service, came under the jurisdiction of the Mechanical Dept. The Station Foremen were responsible for providing the service as directed by the Division Supt. and authorized by approved schedules. They assigned cars by number to the different lines, and issued suitable instructions for the pulling in and placing of cars on tracks in proper order for pulling out the next day. In order to eliminate the necessity for night switchmen, the Mech. Dept. men listed the cars by track number as they were switched into the yards, and from these lists the Night Station Foreman marked the cars up on the station blackboards. Station Clerks were the assistants of the Station Foremen but were also subject to rules of the Treasurer's Department in handling money.

On January 1st of each year, a general assignment of trainmen to lines was made at each station. These assignments were made in accordance with the selections made by the trainmen themselves, those with the most seniority having first choice, the others followed in order of appointment to the station. An assignment to runs was made on the first of each month in the same manner as the annual assignment to lines. Trainmen assigned to an inter-city or suburban line could choose, at the annual or monthly assignment, runs on their own line in the order of assignment to that line; however they could not choose runs on local lines or on other inter-city or suburban lines. Local trainmen could choose runs on any local line at their station in the order of appointment to the station. All trainmen not included in the monthly assignment were placed on the extra list and assigned in rotation to fill temporary and/or permanent vacancies and operate rush hour or extra service.

The Steamboat Division (Navigation Dept.) included all passenger boat service, together with work and supply boat service, conducted by the company. The Boat Foreman, with headquarters at the Excelsior Docks, and reporting directly to the Minneapolis Division Superintendent, was in complete charge of this sub-department. He was responsible for having a suitable number of pursers and pilots to operate the boats in regular service, to provide for emergencies and excursions, and to operate work and supply boats. Operation of the mechanical equipment of the boats, as well as necessary repairs and maintenance of the boats, was under the direct supervision of the Master Mechanic.

The Schedule Department, headed by the Superintendent of Schedules, was responsible for the preparation of schedules to cover service requirements of the various lines, preparation of special schedules for holiday and special service, and for checking traffic conditions on all lines of the system at regular intervals. Traffic checks were made every other day at the following maximum load points:

Minneapolis: 12th and Hennepin, 7th and Hennepin, 2nd and Central, 4th and Central, 11th and Marquette, 4th and Grant, 1st Ave. N. and 5th St., 8th Ave. So. and 6th St., 15th Ave. So. and Cedar, and Plymouth and Washington.

St. Paul: 7th and Broadway, Seven Corners, 3rd and Robert, 4th and Wabasha, 10th and St. Peter, and Rice and University.

In general an average load in any one fifteen-minute period in excess of an average of 60 passengers per car was considered excessive, although for the half-hour at the peak of the rush hour period an average load of 70 passengers per car was permitted.

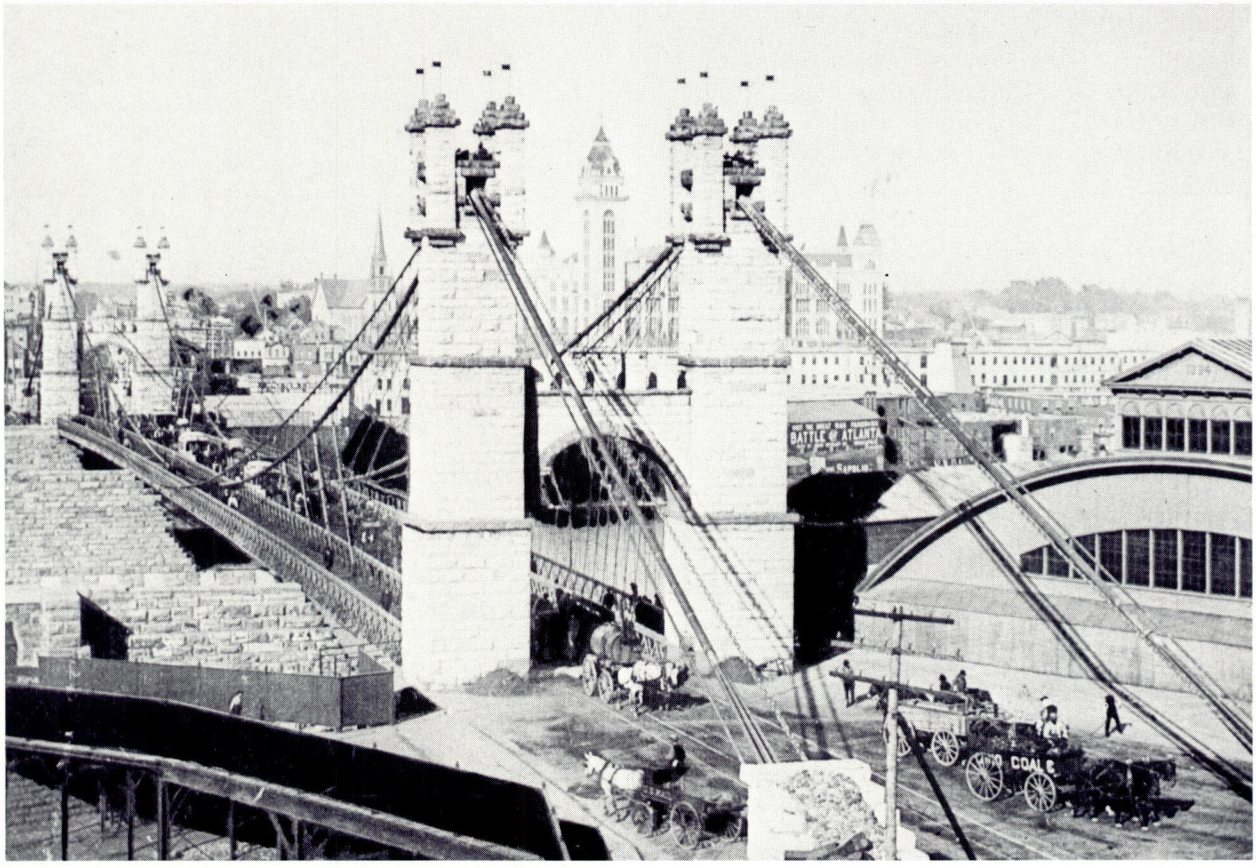
The Employment Bureau, located at Snelling Station, was headed by the Superintendent of Employment. His subordinates consisted of a Medical Examiner, two Instructors for lines operating out of Minneapolis stations, one Instructor for lines operating out of St. Paul stations, and two Instructors in charge of the instruction car. When an applicant was accepted as a student, he was assigned to a car station; one of the instructors then ordinarily spent 60 hours training him for the position. The next 70 hours was devoted to thoroughly learning the local conditions and rules applying to each line operating out of the station from other instructing trainmen. Then the student spent an additional 10 hours with his original instructor. This was a total of 140 hours of instruction.

The trainmen's club rooms at the car stations were under the direct management of the Superintendent of Parks. A custodian was in charge at all times and was responsible for the general appearance, maintaining order, and enforcing company rules with regard to use of the rooms and equipment. Entertainment for trainmen and guests was under the direction of the General Director of the Employees Mutual Benefit Association.

Club rooms were open on weekdays from 8 A.M. to 11 P.M. and on Sundays from 9 A.M. to 11 P.M. The charge for use of pool tables, and the prices for cigars, tobacco, and other supplies was to cover only the cost of operation,

the intention being not to realize profit. Reading rooms were supplied with local newspapers and current magazines; a public library branch had also been installed. Sleeping rooms were equipped with cots for the use of employees who desired to rest; blankets were furnished to those who desired to remain all night.

The second suspension bridge, built 1876-1877, across the Mississippi River at Hennepin Ave., Minneapolis. The Great Northern Ry. passenger station, built 1881-1884, is on the far right. Construction work on the piers for the steel arch bridge, built 1889-1890, is well along at the left. (James Foster collection)



Routes and Combinations of Lines

The constant revisions in routes of lines and the changes in combinations of lines was due to efforts to provide adequate service with efficient equipment usage at the least operating cost as traffic patterns shifted. This is perhaps the most interesting subject and one for which the most records were located. These changes are given in chronological order for each city so as to tie in with the track construction records in chapter 2 and to give a feeling of the changes caused by growth and resulting expansion of the system.

Minneapolis

1891

During electrification of the horsecar lines, each electric line completed was routed to the High St. loop in downtown Minneapolis. There were few exceptions which are noted below. As total electrification neared, the first combining of lines was undertaken. The following list summarizes the lines operated during 1891. Operation around the High St. loop was counterclockwise: Washington Ave. — 1st Ave. So. — High St. — Hennepin Ave. — Washington Ave.

"Interurban"

"University" operating on 4th St. S.E. and Oak St. S.E.

"Hennepin Ave." (beginning June 28 it became "Central-Hennepin & Lake Harriet")

"Kenwood"

"8th Ave. So."

"Bloomington Ave." (wyed at 1st Ave. So. and Washington Ave. until changed to the High St. loop)

"Lyndale Ave." (operated as such from November 28, 1890, until December 19, 1891, when it became the "Monroe & Bryant" line; "Broadway" was a short line on the Monroe St. end while the "Lyndale" short line operated northbound to the High St. loop or southbound to 31st St. and Lyndale Ave.)

"Minnehaha Ave."

"1st Ave. So." (wyed at 1st Ave. So. and Washington Ave. until July when changed to the High St. loop.) "Washburn Park" was a long line to 50th St. and Nicollet Ave. So. Beginning August 13 crosstown service was provided by a branch line running from the High St. loop on 1st Ave. So. and Nicollet Ave. to 31st St. and on 31st St. to Hennepin Ave.)

"Camden Place", also called "Washington Ave. N." and "Wash. Ave. N. & Camden Place" lines.

"Western Ave." (beginning August 4th it became the "Western-2nd St. N.E." line.)

"6th Ave. No."

"Hawthorne"

"20th Ave. No."

"Plymouth Ave."

"Cedar Ave." (routed through downtown on Washington Ave. — Hennepin Ave. — 6th St. — 1st Ave. So. —Washington Ave.)

"Emerson Ave."

"4th Ave. So." (wyed at 1st Ave. So. and 3rd St.)

1892

Effective November 1st, the following changes were put into effect:

"Lake Harriet" line, operating from the Lake Harriet loop via Hennepin Ave. to the High St. loop.

"8th Ave. So. & Central" line, routed through downtown via 8th Ave. So. — 6th St. — Hennepin Ave. to Central Ave. N.E.

"4th Ave. So. & 6th Ave. No." line, routed via 4th Ave. So. — 3rd St. — 3rd Ave. No. — Washington Ave. N. to 6th Ave. No.

"Nicollet & 1st Ave. So." terminology replaced the previous designation.

1893

The "Nicollet & 1st Ave. So." line was re-named the "Nicollet Ave. & Washburn Park" line. The "Washburn Park" long line continued operating to 50th St. and Nicollet Ave.

The "Minnehaha Ave." line was re-named the "Minnehaha Falls & Riverside" line.

Both of the foregoing lines continued using the High St. loop.

1894

To relieve congestion on the High St. loop, the routing of the "Interurban" line was changed in July to Washington Ave. — Hennepin Ave. — 6th St. — 1st Ave. So. — Washington Ave.

The "Plymouth & Bloomington" line was formed, operated from the Bloomington Station. Downtown route was via 4th St. — 1st Ave. So. — Washington Ave. The "Bloomington Ave." short line was operated to the High St. loop.

The "Washburn Park & Camden Place" line was formed, routed through downtown via Nicollet Ave. — 1st Ave. So. — Washington Ave.

The "Cedar & Emerson" line was formed, operated from the Bloomington Station. Routing was via Cedar Ave. — Washington Ave. — 20th Ave. No. — Emerson Ave. No.

Apparently some experimenting was underway; transfers dated 1894 are in existence from the following lines: "University-Hawthorne-Como Ave.", and "University-Hawthorne-Oak St.".

1895

The "Minnehaha Falls" designation replaced the former "Minnehaha Falls & Riverside" name when downtown routing was changed to Washington Ave. — Hennepin Ave. — 6th St. — 1st Ave. So. — Washington Ave.

1897

Due to relocation of trackage, the routing of the "4th Ave. So. & 6th Ave. No." line was changed to operate through downtown on 5th St. from 4th Ave. So. to 6th Ave. No.

A transfer dated 1897 was issued by the "Oak St. & Bryn Mawr" line.

1898

Beginning July 1st, the second inter-city line between Minneapolis and St. Paul was established, being referred to as the "Como Interurban" or "Como-Interurban-Harriet" line. Operation in Minneapolis was from Lake Harriet loop via the Harriet right-of-way — Hennepin Ave. — 4th St. S.E. — 15th Ave. S.E. and Como Ave.

1899

The "Camden Extension" line was opened December 1st, operating on Lyndale Ave. N. between 42nd and 49th Ave. N. using a double end car.

1900-1901

Company directories and internal forms provide a complete listing of the lines operated and their routes.

"Oak & Kenwood": Oak and Washington via Oak St., 4th St. S.E., Hennepin Ave., Douglas Ave., Oliver Ave., to 21st and Penn. Operated from East Side Station.

"Bryant Ave.": 46th and Bryant via Bryant Ave., 31st St., Lyndale Ave., Hennepin Ave. to Hennepin and Washington. Operated from 31st St. Station.

"Monroe & Lyndale": 17th Ave. N.E. and Washington St., via Washington St., Broadway, Monroe, Central, Hennepin, and Lyndale Ave. to 31st St. and Lyndale. Operated from East Side Station.

"Bryn Mawr & 8th St. S.E.": Laurel and Cedar Lake Rd. via Laurel, Aldrich, Hawthorne, 12th St., Hennepin, Central, and 8th St. S.E. to 8th St. S.E. and 14th Ave. S.E. Operated from East Side Station. (Previous to 1899 the "Bryn Mawr" line ran to the High St. loop; when track was built on 8th St. S.E. in 1899, the line was extended over this new trackage.)

"8th Ave. So. & Central": 38th St. and 8th Ave. So., via 8th Ave. So., 6th St., Hennepin, Central, to 29th Ave. N.E. and Central. "8th Ave. So." short line operated from

29th St. and 8th Ave. So., on 8th Ave., 5th St., and Hennepin to Hennepin and Washington. "Columbia Heights" line, also known as "Columbia Heights Extension" line, operated on Central Ave. between 29th Ave. N.E. and 40th Ave. N.E. Operated from East Side Station.

"Western & 2nd St. N.E.": Western and Penn, via Western, 7th St. N., Hennepin, 2nd St. N.E. to 25th Ave. N.E. and Grand St. Operated from East Side Station.

"Washburn Park & Camden Place": regular cars ran from 38th St. and Nicollet Ave., via Nicollet, 1st Ave. So., Washington to 42nd Ave. N. & Washington. "Washburn Park Extension" line cars ran on Nicollet Ave. from 38th St. to 50th St. "Camden Place Extension" line cars ran on Lyndale Ave. No. from 42nd and Washington to 49th Ave. No. Operated from 31st Street Station.

"1st Ave. So. & 20th Ave. No.": 31st and Hennepin via 31st St., Nicollet, 1st Ave. So., Washington Ave., 20th Ave. No., Crystal Lake Ave., Penn Ave. to 32nd Ave. No. and Penn. The "1st Ave. So." short line ran from 31st and Nicollet via Nicollet and 1st Ave. So. to the High St. loop. Operated from 31st Street Station.

"Plymouth & Bloomington": 32nd and Bloomington via Bloomington, Franklin, 15th Ave. So., 7th St., 10th Ave. So., 6th St., 8th Ave. So., 4th St., 1st Ave. So., Washington, Plymouth to Plymouth and Penn. "Bloomington Ave." short line operated from 32nd and Bloomington via same route to 1st Ave. So. and thence to the High St. loop. Operated from Bloomington Station.

"Cedar & Emerson": 34th and Cedar, via Cedar, Washington, 20th Ave. No., Emerson, to 32nd Ave. No. and Emerson. "Cedar Ave." short line ran from 34th and Cedar to Hennepin and Washington. Operated from Bloomington Station.

"Minnehaha Falls": Minnehaha Falls via Minnehaha Ave., 27th Ave. So., Riverside, Cedar, Washington, Hennepin, 6th St., 1st Ave. So., Washington and return to the Falls. The "Riverside" short line operated from 32nd St. and Minnehaha Ave. to downtown Minneapolis over the same route. The station operating this line was not given.

"4th Ave. So. & 6th Ave. No.": 38th St. and 4th Ave. So., via 4th Ave. So., 3rd St., Hennepin, 5th St., 6th Ave. No. to 6th Ave. No. and Russell. "4th Ave. So." short line ran from 4th Ave. So. and 31st St. to 3rd St. and Hennepin. Operated from 31st St. Station.

"Interurban": route in Minneapolis via University Ave., Washington, Hennepin, 6th St., 1st Ave. So., to Washington. Operated from East Side Station.

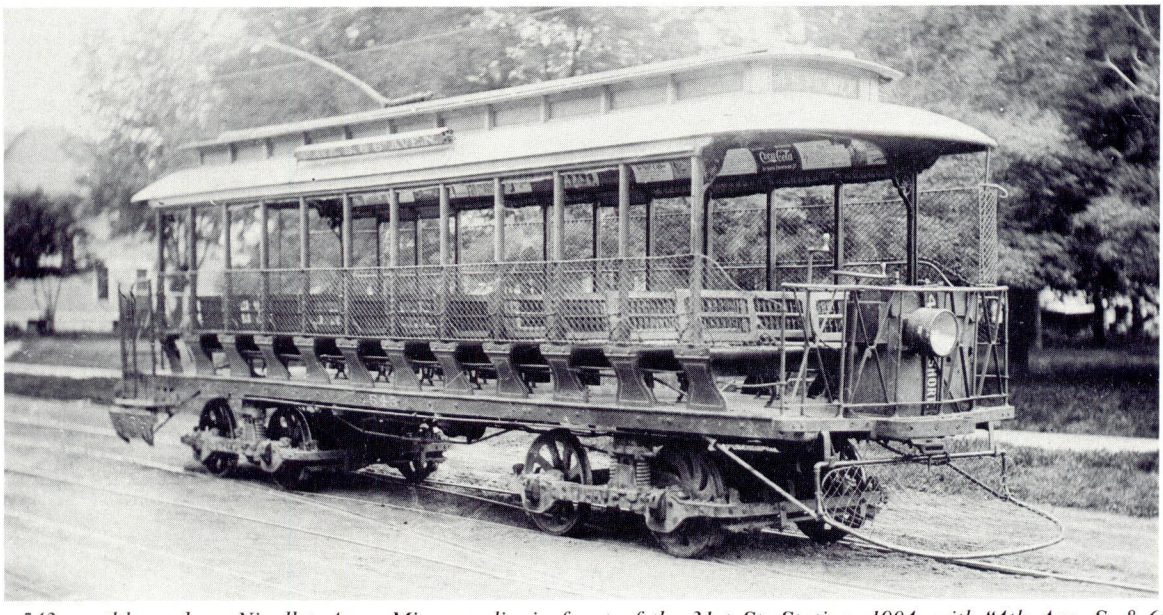
"Como-Interurban-Harriet": Lake Harriet loop, Harriet right-of-way, 31st St., Hennepin Ave., 4th St. S.E., 15th Ave. S.E., and Como Ave. to St. Paul. Operated from East Side Station.

The "St. Louis Park & Hopkins" electric line was listed as operating from 29th St. and Hennepin Ave., on 29th St. and Minnetonka Boulevard, to and through St. Louis Park to Monk Ave., thence south to Excelsior Ave., and west to Hopkins.

1902

Experimenting with various line combinations is again noted. The following lines were tried: "Oak & Kenwood", "Como & Kenwood", Oak & Hennepin", "20th Ave. N. & Hennepin" and "20th Ave. to Harriet", and "Kenwood-8th St. S.E.".

A special "Lake Harriet & Minnehaha Falls" line was operated during summer Sundays and holidays only. The routing is not known. (After construction of trackage on Lake St. during 1905, this line ran on Lake St. between Hennepin and 27th Ave. So.)



Open car 543 southbound on Nicollet Ave., Minneapolis, in front of the 31st St. Station, 1904, with "4th Ave. S. & 6th Ave. N." signs. (Robert Bowes collection)

1903

As of December 28th the Minneapolis Division operated the following lines: "4th Ave. So. & 6th Ave. No."; "4th Ave. So." short line; "8th Ave. So. & Central"; "8th Ave. So." short line; "Columbia Heights"; "Plymouth & Bloomington"; "Cedar & Emerson"; "Cedar Ave." short line; "Minnehaha Falls"; "Oak & Kenwood"; "Bryn Mawr & 8th St. S.E."; "Hennepin Ave." local (to 15th Ave. S.E. and Como Ave.); "Western & 2nd St. N.E."; "Monroe & Lyndale"; Washburn Park & Camden Place", and "1st Ave. So. & 20th Ave. No."; "1st Ave. So." short line.

The two intercity lines were operated as separate divisions: Interurban Division; "Interurban" line and Como Interurban Division; "Como-Interurban-Harriet" line.

1905

The "Lake St." line was opened May 27th running on Lake St. from Hennepin Ave. to 31st Ave. So.

Due to new track construction, the "Minnehaha-Riverside-Fort Snelling" line began operation to Fort Snelling August 21st; the downtown Minneapolis route beginning October 23rd was: Washington — 4th Ave. So. — 3rd St. — 1st Ave. No. — 5th St. — 2nd Ave. So. — Washington.

1906

The "Interurban" line downtown routing was changed May 9th to Washington — 1st Ave. N. — 5th St. — 2nd Ave. So. — Washington. Destination signs in use at this time read "Mpls. & St. Paul" and "St. Paul & Mpls.".

The "8th Ave. So. & Col. Hts." designation went into effect May 2nd when the shuttle service on Central Ave. N.E. was discontinued and replaced by through cars. A change in the downtown routing was effective the same date: eastbound cars ran on 6th St. — 2nd Ave. So. — Washington — Hennepin — Central; westbound cars ran on Hennepin — 5th St. — 2nd Ave. So. — 6th St. "8th Ave. So." short line cars were changed May 8th to run on 6th St. — 1st Ave. No. — 3rd St. — Hennepin — 6th St.

The "Bryn Mawr & 8th St. S.E." line downtown routing was changed May 4th to Hennepin — 6th St. — 1st Ave. N. — 5th St. — Hennepin.

Special Sunday and holiday service provided by the "Lake Harriet & Minnehaha Falls" line was discontinued June 15th and replaced by expanded "Minnehaha & Fort Snelling" line service; the downtown routing was also changed simultaneously to Washington — 4th Ave. So. — 3rd St. — 1st Ave. N. — 5th St. — 2nd Ave. S. — Washington. "Washington-Riverside" short line cars had

Looking northwesterly on Washington Ave., Minneapolis, across the Nicollet Ave. intersection. Note the original Nicollet Hotel at the center left. Destination sign on the leading streetcar reads "Plymouth & Bloom." (A. D. Roth)

been running to 32nd St. and Minnehaha Ave.; beginning Sept. 22nd they began using the Ball Park wye at 37th St. and Minnehaha Avenue instead.

The third inter-city line, "Selby-Lake", was begun May 21st operating from Lake St. and Hennepin Ave., on Lake St. across the Lake St. bridge to St. Paul. From June 29, 1906, until October 8, 1907, it was extended to downtown Minneapolis over the following route: Hennepin — 6th St. — 1st Ave. N. — 5th St. — Hennepin.

The North Side St. Ry. connecting Minneapolis with Robbinsdale was purchased November 5th and operations begun in conjunction with the 20th Ave. N. line as the "20th Ave. No. & Robbinsdale" line.

The Minneapolis Land & Investment Company's St. Louis Park-Hopkins line was purchased November 12th and operations continued as previously from 29th St. and Hennepin Ave. Effective December 15th the service was cut back from Hopkins to St. Louis Park (W. Lake St. and Broadway) except for certain runs; the company bulletin establishing the change stated that cars would be operated from 29th & Hennepin to St. Louis Park only except for the following service to Hopkins which would be run until May 1, 1907:

Weekdays: eastbound: one car leaving Oak Hill 6:05 A.M., arriving 29th & Hennepin 6:25 A.M. and one car leaving Hopkins 6:30 A.M. arriving 29th & Hennepin 6:55 A.M.; westbound: one car leaving 29th & Hennepin 5:55 P.M., arriving Hopkins 6:20 P.M.

Saturdays: eastbound: same as weekday service except that the car leaving Oak Hill departs at 6:06 P.M.; westbound: one car leaving 29th & Hennepin 4:55 P.M., arriving Hopkins 5:20 P.M.

1907

The "Grand Ave." line, later referred to as "1st Ave. So. & Grand" line was opened November 18th as follows: Grand Ave. — Lake St. — Nicollet — 1st Ave. So. — 3rd St. — 1st Ave. N. — Washington — 1st Ave. So.

The "Bryn Mawr & 8th St. S.E." line routing was changed January 15th to Hennepin — 3rd St. — 1st Ave. N. — wye and return by the same route. (Apparently this route was for cars that did not run over the entire line.)

"Cedar & Emerson" line route was changed May 18th to run on Washington Ave. between 4th Ave. So. and 1st Ave. No. instead of 3rd St.

On May 16th larger cars were placed on the "St. Louis Park" line and it was extended to downtown via Hennepin — 7th St. — 1st Ave. No. — 6th St. — Hennepin. Layover time was taken in front of the company's waiting room and ticket office at 17 N. 6th St.

The "Lake St." crosstown line ceased operating October 8th when the "Selby-Lake" line was cut back from downtown Minneapolis, but was subsequently restored.

1909

The "Interurban" line route may have been changed to: Washington — 4th Ave. So. — 3rd St. — 1st Ave. N. — 5th St. — 2nd Ave. S. — Washington.

The "Como-Harriet" interurban line was extended to a new loop constructed at 44th St. and France Ave. So. (at the "city limits sand pit"); the effective date was June 5th.

After installation of new switches at Grand Ave. and Lake St., operation of the line on Grand Ave. was changed August 14th to the "Lyndale & Grand" line. Routing was Grand Ave. — Lake St. — Lyndale — Hennepin — 3rd St. — 1st Ave. N. — wye and return via the same route.

Effective January 15th cars using the High St. loop were instructed to take their layover time on High St. instead of the side track on 1st Ave. So.

Telephone dispatching was begun on the "St. Louis Park" line, with the operators of all cars, both eastbound and westbound, to telephone the dispatcher for orders before leaving 29th St. and Hennepin.

The fourth intercity line was established June 21, 1909, upon completion of the new bridge across the Mississippi River at Fort Snelling. This line was named the "Snelling-Minnehaha" interurban line. It operated from E. 7th St. and Duluth Ave. in St. Paul, on 7th St. to Fort Snelling and thence over the "Minnehaha-Fort Snelling" line to downtown Minneapolis; the route in downtown Minneapolis is not known. Destination signs used read "Snelling-Minnehaha", "Fort Snelling" and "7th St.". In Minneapolis a "Minnehaha Falls" local line was established replacing the "Minnehaha & Fort Snelling" line; the route was Washington — 2nd Ave. No. — 3rd St. — 4th Ave. So. — Washington. Schedule Dept. records indicate the "Fort Snelling Extension" line began operating July 14th using a single truck, double end car.

1910

This year saw several major changes take place. On May 2nd:

"Interurban" line routing was changed to Washington — 2nd Ave. So. — 6th St. — 1st Ave. N. — wye and return via the same route.

"Snelling-Minnehaha" line routing was changed to Washington — 4th Ave. So. — 3rd St. — 1st Ave. N. — wye and return via the same route. The "Minnehaha Falls" and "Washington-Riverside" lines were changed to this routing as well. Pull-out cars from East Side Station operated via Washington — 1st Ave. N. — 3rd St.

"Bryn Mawr & 8th St. S.E." line route changed back to Hennepin — 6th St. — 1st Ave. N. — 5th St. — Hennepin. Confusion exists as to just when the "Bryn Mawr" and "Kenwood-8th St. S.E." lines were formed; company records are contradictory and confusing. It may have been about this time, or perhaps as early as 1906.

"4th Ave. So." short line cars were changed to operate 5th St. — 1st Ave. N. — wye and return via the same route.

"Lyndale & Grand" line route was changed to Hennepin — 3rd St. — 1st Ave. N. — 5th St. — Hennepin.

The "Oak & Hennepin" line was extended to Lake Harriet loop and re-named the "Oak & Harriet" line.

On June 25th a major re-alignment of several lines was effected; the results were as follows:

"Washburn Park & Columbia Heights" line, operating on 1st Ave. So. — High St. — Hennepin Ave. — Central Ave.; "1st Ave. S. & Central" or "Nicollet & Central" cars operated from 38th St. and Nicollet to 29th Ave. N.E. and Central.

"Wash. Pk. & Col. Heights" cars operated from 50th St. and Nicollet to Columbia Heights.

"54th St. & Col. Heights" (1911 and subsequently) cars ran from 54th St. and Nicollet to Columbia Heights.

"1st Ave. & Grand" (later named "Marquette & Grand") line operating on Grand, Nicollet and 1st Ave. So. and wyeing at 1st Ave. So. and High St.

"8th Ave. So. & Emerson" line, operating via 6th St. — 1st Ave. N. — Washington Ave. — 20th Ave. N. — Penn Ave. N.

"8th Ave. S. & 20th Ave. N." cars ran from 38th St. and 8th Ave. So. to 32nd Ave. N. and Penn Ave.

"8th Ave. S. & Emerson" cars ran from 46th St. and 8th Ave. So. to 36th Ave. N. and Fremont.

"8th Ave. S. & Fremont" cars ran from 46th St. and 8th Ave. S. to 42nd Ave. N. and Fremont (1912 and subsequently).

"8th Ave. to Lake" cars pulled into the Lake St. Station.

"Cedar & Camden" line, operating from 34th and Cedar to 42nd and Washington. The "Camden Extension" line continued as it was. This new line was operated from Bloomington Station.

On November 14th the "20th Ave. No. & Robbinsdale" line was cut back from downtown Minneapolis. It was operated as the "Robbinsdale Extension", probably from Penn and 32nd Ave. N. using double end cars provided by East Side Station.

The new Lake Street Station opened December 5th replacing the Bloomington Station. The following lines were transferred from the various stations indicated to Lake Street: from East Side Station: "8th Ave. S. & Emerson", "8th Ave. S. & 20th Ave. N.", and "Minnehaha Falls & Riverside"; from 31st St. Station: "Selby Lake"; from Snelling Station: "Snelling-Minnehaha"; from Bloomington Station: "Plymouth & Bloomington" and "Cedar & Camden".

Looking north on Cedar Ave., Minneapolis, at the Franklin Ave. intersection and the C. M. & St. P. R. R. crossing. Note the crossing watchman's tower at the left. (Minnesota Historical Society collection)

1911

Lines operated from East Side Station at this time were: "Como-Harriet", "Como-Hopkins", "Oak-Harriet", "Monroe & Bryant", "Western & 2nd St. N.E.", "Kenwood & 8th St. S.E.", "Lake Minnetonka", "St. Louis Park", "Bryn Mawr", "Robbinsdale Extension" and "Camden Extension". The newly constructed track on Johnson St. N.E. was operated as a shuttle service in connection with the "Kenwood & 8th St. S.E." line.

Lines operated from 31st St. Station were: "4th Ave. S. & 6th Ave. N.", "Washburn Park & Col. Hts.", "1st Ave. S. & Central" and "1st Ave. S. & Grand".

1912

Due to completion of new trackage on Johnson St. N.E. on July 31st, the "Kenwood-Johnson" line resulted. The route of "Bryn Mawr" line cars was changed to Hennepin — 3rd St. — 1st Ave. N. — 5th St. — Hennepin. This apparently marks the change to hyphenating line names instead of using the ampersand.

The "28th Ave. So. — Camden" name change resulted from completion of the new trackage.

The "East 25th St." line opened November 28th as a shuttle service. A double end car was used with what was normally the front end facing west; pull-outs ran to the switch point at Cedar and Minnehaha and then "backed" onto Minnehaha; pull-ins ran to 15th and Cedar (7 Corners), wyed, and proceeded back to Lake St. Station.

On November 22nd the route of the "Plymouth & Bloomington" line was changed to Washington — 2nd Ave. N. — 3rd St. — 1st Ave. So. — 4th St.

"Snelling-Minnehaha" line route was changed to Washington — 4th Ave. So. — 3rd St. — 1st Ave. N. — Washington — 2nd Ave. N. — 3rd St. (layover time at 3rd and Hennepin) — 4th Ave. So. — Washington.

Effective May 30th, 5 minute service was operated on Sundays only from Lake St. and Hennepin Ave. to Minnehaha Falls.

1913

"Oak-Harriet" line was extended from the Lake Harriet loop to Xerxes Ave. and 50th St. upon completion of new trackage on Xerxes.

Completion of the new trackage resulted in another name change to the "Lake Nokomis-Camden" line; cars also began operating through to 51st Ave. N. and Lyndale, replacing the double end car shuttle service. The following destination signs were used: "Lake Nokomis-Camden", 50th St. and 28th Ave. So. to 42nd Ave. N. and Washington; "50th-Camden", 50th St. and 34th Ave. So. (1914 and subsequently) to 42nd Ave. N. and Washington; "38th-Camden", 38th St. and 28th Ave. So. to 42nd Ave. N. and Washington; "Cedar-Camden", 34th St. and Cedar Ave. to 42nd Ave. N. and Washington, and "N. Lyndale to 51st" and/or "50 St. — N. Lyndale", 50th St. and 28th Ave. So. (later 34th Ave. So.) to 51st Ave. N. and Lyndale.

1st Ave. S. in downtown was re-named Marquette Ave., so new destination signs reflecting the change went into use June 13th.

Supplementary service between 29th St. and Hennepin Ave. to Lake Calhoun was begun June 21st. Wyes were located at 29th St. and Holmes Ave. So. and at Excelsior Boulevard and W. Lake St. so single end cars were used. "Calhoun Beach" signs were used. Through cars used "St. Louis Park" signs.

1914

The routing of "4th Ave. So." short line cars was changed February 7th to wye at 5th St. N. and 5th Ave. No.; cars backed down the wye until they were clear of the siding switch at the 4th St. end, then pulled forward into the siding and took their layover time on the siding.

The routing of the "Interurban" line was changed February 9th to Washington — 2nd Ave. So. — 5th St. — to 5th St. and 5th Ave. N. wye.

The "Cedar Ave." shuttle line began operating June 3rd on Cedar Ave. between 35th St. and 42nd St. using a double end car.

The "Broadway-20th" line was established June 27th operating from Broadway and Jackson St. N.E. on Broadway and 20th Ave. No. to 20th Ave. N. and Washington Ave. N. This was operated from East Side Station.

The "42nd Ave. So." line was opened September 25th operating from 36th Ave. So. and Lake St. to 42nd Ave. So. and 41st St. Regular cars met at a siding on 34th St. with the northbound car taking the siding. Supplemental service on Lake St. was extended to 36th Ave. So.

The new North Side Station opened October 25th. The following lines were transferred from other stations for operation from the new station: "Broadway-20th" from East Side Station; "Lake Nokomis-Camden" from Lake St. Station (later this line was jointly operated from Lake St. and North Side Stations), and "8th Ave. So.-Emerson", "8th Ave. So.-Fremont", and "8th Ave. So.-20th Ave. No." lines from Lake St. Station.

Since 8th Ave. So. south of the downtown area had been previously re-named Chicago Ave., the line designation was changed August 3rd to: "Chicago-Penn", "Chicago-Emerson", "Chicago-Fremont". The "Chicago-Penn" line was operated with separate crews and runs from the "Chicago-Emerson-Fremont" line.

The "Snelling-Minnehaha" line route was shifted October 31st to newly completed trackage: Minnehaha — 27th Ave. So. — Franklin Ave. — 4th Ave. So. — 11th St. — to the 11th St. and Hennepin Ave. terminal.

Also on October 31st the "East 25th St." line began operating downtown via Cedar — Washington — 4th Ave. So. — 3rd St. — 1st Ave. N. — Washington — 2nd Ave. No. — 3rd St. (layover was taken at 2nd Ave. N. and 3rd St.) — 4th Ave. S. — Washington.

The "St. Louis Park" and "Robbinsdale" lines were combined October 31st, operated out of East Side Station. The routing was via Crystal Lake Ave. — 20th Ave.

No. (later re-named Broadway) — Washington — 1st Ave. N. — 6th St. — Hennepin for southbound cars, while northbound cars ran via Hennepin — 7th St. — 1st Ave. N. — Washington.

MSR began operating the University of Minnesota's Inter-Campus line November 4th using cars 1079-1084. Normal service was with two cars providing 15 minute headway on weekdays and Saturday morning. 30 minute headway was provided Saturday afternoons. No service was operated evenings and Sundays. During weekday mornings two-section runs were operated. Cars left both ends of the line simultaneously, the first car at 7:30 A.M. and the last car at 5:30 P.M. (Fare was 5 cents, 6 tickets for 25 cents, or 50 tickets for $2.00.) Service was discontinued during summer vacation from about June 15th to September 15th.

1915

The "East 25th St." line route in downtown was changed to: Washington — 2nd Ave. No. — 3rd St. — 4th Ave. So. — Washington.

The downtown route of the "Snelling-Minnehaha" line was changed December 31st to its former route: Washington — 4th Ave. So. — 3rd St. — 1st Ave. No. — Washington — 2nd Ave. No. — 3rd St. (layover was taken at 2nd Ave. N. and 3rd St.) — 4th Ave. So. — Washington. Cars operating from Snelling Station were to pull-in to the carhouse over the "Selby-Lake" or "Interurban" lines.

The opening of the Motor Speedway on the "Snelling-Minnehaha" line required the following service: "Snelling-Minnehaha" regular cars both eastbound and westbound operated over the Speedway spur and loops; extra cars with "Speedway" signs operated to and from the Speedway spur and loops from both downtown Minneapolis and St. Paul.

1916

"Como-Harriet" line destination signs and their use during this period of time were as follows: "Como-Harriet", "Como-Hopkins"; "15th & Como", 15th Ave. S.E. and Como to 44th and France; "Como Ave. to Eustis" (effective December 6, 1916); "Como Ave. to Mpls. Loop", pull-ins to East Side Station from St. Paul (effective July 26, 1915), and "Fair Grounds", from Minneapolis to Snelling and Como Avenues in St. Paul (effective May 15, 1916).

The "Snelling-Minnehaha" line was changed January 7th to its previous route over Franklin Ave., 4th Ave. So., and 11th St. to the terminal at 11th and Hennepin. In addition cars ceased running through the Motor Speedway spur and loops.

"Lake Harriet" line cars were operated from the Lake Harriet loop to Hennepin Ave. and 1st St., thence on 1st St. to a wye at 1st St. and 1st Ave. No.

Special Sunday and holiday service was again established June 14th: cars operated from Lake St. and Hennepin Ave. to Minnehaha Falls. "Minnehaha Falls" signs were used southbound and "Lake St." or "Lake to 36th" signs northbound.

The "Cedar Ave." line began operating downtown November 1st replacing the shuttle service previously operated. Cars ran from 42nd and Cedar down Cedar to Washington — 4th Ave. So. — 3rd St. — 2nd Ave. No. — Washington. On the single track portion of the line, meeting points were at 35th and Cedar and 42nd and Cedar; southbound cars waited at 35th St. for the northbound car to clear the single track, then proceeded to 42nd St., allowed the car there to pull out, then wyed and waited for the following southbound car to arrive before pulling out.

The "Franklin-11th St." line was established December 17th operating out of Lake St. Station. The route was from the Mississippi River Blvd. loop on Franklin Ave. to 4th Ave. So. — 11th St. — to 11th and Hennepin terminal. "Franklin-11th" signs were used.

1918

On July 6th the "Cedar Ave." line was cut back from downtown to Cedar Ave. and Lake St.

On September 1st the following new line combinations went into effect: "Grand-Johnson", operated from Nicollet station; the route was via Nicollet — Marquette — High St. — Hennepin — 8th St. S.E. to Johnson. Some runs were later transferred to East Side Station.

"Kenwood-E. 25th", operated from East Side Station; routed via Hennepin — Washington — Cedar — Minnehaha — 25th St.

On November 4th the "Interurban" line was extended out 6th Ave. No. The route was Washington — 2nd Ave. So. — 5th St. — 6th Ave. No. Signs used were "Mpls.-6 Ave. N." until May 21, 1919, when these were adopted: "To Minneapolis", "To St. Paul", and "To Minneapolis-6th Ave.". At the same time the "4th Ave. South" line was established with all cars running on 4th Ave. So. — 5th St. — Marquette — 6th St. — 1st Ave. No. — 5th St. — 4th Ave. So.; layover was taken at 1st Ave. No. and 5th St. On November 7th the route was changed to have all cars run on 5th St. directly to 1st Ave. No. and wye there.

1919

On January 13th the "Kenwood-E. 25th" line was rerouted through downtown: Hennepin — 3rd St. — 4th Ave. So. — Washington.

Effective January 16th the following new line combinations began operating: "Bloomington-Col. Hts." line, operating through downtown via 4th St. — 1st Ave. So. — Washington — Hennepin — Central. Destination signs used were: "Bloomington-Col. Hts."; "Central to 40th"; "Bloomington-Central", and "Bloomington to Lake" (for pull-ins to Lake St. Station).

"Minnehaha Falls-Plymouth" line, operating separately from the "Snelling-Minnehaha" line and entirely within Minneapolis. "Nicollet Ave." line; destination signs used were: "Nicollet to High St.", "Nicollet to 31st",

"Nicollet to 38th", "Nicollet to 50th", and "Nicollet to 54th".

Apparently conditions were still unsatisfactory for on July 1st another major re-union of lines went into effect: "Nicollet-2nd St. N.E." line, using the following destination signs: "Nicollet-2nd St. N.E." and "2nd St. N.E. to Lowry".

"Western-4th Ave." line, routed through downtown via 5th St. — 1st Ave. No. — 7th St. N. — Western Ave. Destination signs used were: "Western-4th Ave." (to Western and Penn). "Western to Aldrich", and "Glenwood Park".

Effective March 19th the route of the "Bryn Mawr" line in downtown was changed to Hennepin Ave. — 7th St. — 1st Ave. N. — 5th St. — Hennepin.

1920

Some minor route changes and several major changes were effected during 1920, the latter due primarily to extensive track construction projects in the downtown area as well as shifting traffic patterns. Minor changes included the following:

"Interurban" line was re-routed via Washington — 5th Ave. So. — 5th St. to 6th Ave. N.

"Snelling-Minnehaha" runs operated from Snelling Station were transferred August 1st to Lake St. Station so that the line was entirely operated from there.

"Bloomington-Col. Hts." line route was changed to 4th St. — 2nd Ave. So. — 1st St. — 3rd Ave. So. — Central Ave.

"Broadway-20th" line was extended westward to Broadway and Emerson; cars wyed there and took their layover on Broadway.

Effective March 1st, "Oak-Xerxes" cars from 50th St. and Xerxes to Oak St. and Beacon St. wye were instructed to head into the Beacon St. wye, then back out and down to Washington Ave. and then cross to the westbound track.

The major changes consisted of the following, each listed separately.

Effective October 18th, the following lines began operating:

"Grand-Monroe" line, routed via Grand — Lake St. — Nicollet — Marquette — 8th St. — 2nd Ave. So. — 1st St. — 3rd Ave. So. — Central — Monroe. The line was operated jointly from Nicollet and East Side Stations, with East Side pull-outs routed via Hennepin — High St. — Marquette — 6th St. — 2nd Ave. So. and thence northbound. "Grand-Monroe" signs were used.

"Bryant-Johnson" line, routed via Lyndale — Hennepin — 8th St. S.E. — Johnson. On December 10th it was changed to run via Hennepin — 11th St. N. — 1st Ave. N. — 1st St. N. — Hennepin — 8th St. S.E. — Johnson. The line was operated jointly from Nicollet and East Side Stations. "Bryant-Johnson" and "Lyndale to Lake" destination signs were used.

On October 28th the "N.W. Terminal" line began operation, cars running out of East Side Station over the following route: Hennepin — High St. — Marquette — 6th St. — Hennepin — 8th St. S.E. — Johnson St. — E. Hennepin to 17th Ave. S.E. "N.W. Terminal" sign was used. On December 1st it was combined with operations on Nicollet Ave. to form the "Nicollet-N.W. Terminal" line, operating via Marquette — High St. — Hennepin —8th St. S.E. — etc. On December 27th runs were extended to Stinson Blvd. and Broadway.

December 1st was the *big* day when substantial revisions went into effect.

"Chicago-Penn" and "Chicago-Emerson-Fremont" lines were re-routed on newly completed track: 6th St. — 2nd Ave. So. — 8th St. — 2nd Ave. No. — 7th St. No. — Emerson to Broadway. A new line, "Penn-Lake Nokomis", was begun simultaneously to replace service lost on Washington Ave. No.; however it was not successful and lasted only a few weeks.

The "Kenwood-E. 25th" line was split up and the E. 25th St. portion utilized in combination with other lines in attempts to replace service lost on Washington Ave. No. as described above. "Kenwood" line was routed via Hennepin — 11th St. N. — 1st Ave. No. — 5th St. — Hennepin. It was operated from East Side Station using "Kenwood" signs. On December 10th it was extended from 5th St. to 3rd St. on 1st Ave. No. and thence to Hennepin. On December 14th it was again extended on Hennepin Ave. from 3rd St. to 1st St. and on 1st St. to the wye at 1st St. and 1st Ave. No. On December 15th the route was changed once again to Hennepin — 1st St. — 1st Ave. No. — 3rd St. — Hennepin.

"Emerson-E. 25th St.", routed via Washington — Broadway — Emerson — to 36th and Fremont. Changed December 13th to run on Washington — 2nd Ave. So. — 6th St. — 1st Ave. No. — Washington.

"Camden-E. 25th St."

"W. Bdwy-E. 25th St."

The "Robbinsdale-St. Louis Park" line route was revised to operate via Broadway — Emerson — 7th St. N. — 2nd Ave. No. — 1st Ave. No. — 11th St. N. — Hennepin. However on December 13th it was split into two separate lines: "St. Louis Park" line, running on Hennepin — 11th St. No. — 1st Ave. No. — 6th St. — Hennepin; and "Robbinsdale" line, running on Broadway — Emerson — 7th St. No. — 2nd Ave. No. — 1st Ave. No. to the wye at 1st Ave. No. and 11th St. No.

The route of the "Western-4th Ave. So." line was changed to: 4th Ave. So. — 6th St. — 1st Ave. No. — 7th St. No. — Western. Northbound cars with "Loop" signs were routed via 4th Ave. So. — 5th St. — 1st Ave. No. — 6th St. — 4th Ave. So.

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SODA
DRUG
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TOILET ARTICLES
CIGARS
RUBBER GOODS
SICK ROOM SUPPLIES
KODAKS

1921

The "Broadway-20th" line was extended to Broadway and Penn and on Penn Ave. to 38th Ave. N. effective January 4th. However on July 2nd it was cut back to Broadway and Penn; cars backed in on Penn Ave. and took their layover on Penn Ave.

The "Cedar Ave." line was extended to Lake Nokomis (50th St.) on June 16th. A siding was located between 42nd and 43rd St., with the northbound car taking the siding.

A successful solution was found to the problem of service on Washington Ave. No. and the following changes were accordingly made:

On October 19th the "Snelling-Minnehaha" line was combined with the "Minnehaha Falls-Plymouth" local line to form the "Fort Snelling-Minnehaha-Plymouth" line which ran from E. 7th St. and Duluth Ave. (St. Paul), on E. and W. 7th St. through Fort Snelling via Minnehaha — Cedar — Washington — Plymouth to Plymouth and Sheridan.

On October 20th two familiar combinations were resurrected and placed into effect: "Cedar-Emerson" line, running from Lake Nokomis on Cedar — Franklin — 4th Ave. So. — 5th St. — 1st Ave. N. — Washington — Broadway — Emerson to 36th and Fremont. "Cedar-Emerson" and "Cedar to 50th" signs were used.

"Kenwood-E. 25th" line, running through downtown via Hennepin — 3rd St. — 4th Ave. So. — Washington. The various routings previously involving the E. 25th St. portion of the line were discontinued.

The "Nicollet-N.W. Terminal" line was re-routed over newly constructed trackage on E. Hennepin Ave. between 8th St. S.E. and Johnson St.

1923

The "Broadway-20th" line was extended January 3rd over new trackage on Morgan Ave. and 19th Ave. No. to 19th Ave. N. and Upton and re-named the "Broadway" line. The service west of Broadway and Morgan to Broadway and Penn was discontinued.

The "Kenwood-E. 25th" line was extended November 19th replacing the former "42nd Ave. So." line. Cars met at the wye located at 42nd Ave. So. and 41st St. as well as at the siding on 42nd Ave. So.

With completion of the Washburn Ave. N. loop on the "Robbinsdale" line, 20 minute headway was provided to Robbinsdale and 10 minute headway to that loop from downtown Minneapolis.

1924

The "Franklin-11th" line was extended over new trackage to the wye at Oak St. S.E. and Beacon St. effective December 13th. It was subsequently cutback to 27th Ave. S.E. and Yale Ave.

1926

Effective November 28th, involving in part newly constructed trackage, the following line combinations began operating:

"28th Ave. S.-N. Emerson" line: 28th Ave. So. and 50th St. — 28th Ave. So. — 42nd St. — Cedar — Franklin — 4th Ave. So. — 5th St. — 1st Ave. N. — Washington — Broadway — Emerson — Fremont to 36th and Fremont Ave. N.

"34th Ave. S.-N. Bryant" line: 34th Ave. So. — 42nd St. — 28th Ave. So. — 38th St. — 23rd Ave. So. — 35th St. — Cedar — Washington — 45th Ave. N. — Bryant Ave. N. Signs used were: "34th Ave. S.-N. Bryant"; "38th-Camden": 38th St. and 28th Ave. So. to 42nd Ave. N. and Washington; and "46th-Camden": 46th St. and 34th Ave. So. to 42nd and Washington.

"Cedar Ave." line: 52nd St. and Bloomington Ave. — 52nd St. — Cedar — Washington — 4th Ave. So. — 3rd St. — 2nd Ave. N. — Washington. Beginning December 1st the downtown route was changed to: Cedar — Franklin — 4th Ave. So. — 5th St. — to the wye at 5th St. and 5th Ave. N.

Facing Page

The intersection of 5th St. and Hennepin Ave., Minneapolis, during the early 1920's. The West Hotel stood on the southwest corner of the intersection. (TCRT)

This Page

A front exit "gate" car on W. Broadway at the 42nd Ave. N. wye in Robbinsdale during the late 1920's. (James Foster collection)

1927

The "Bryant to 54th-Penn" branch line began operating October 16th.

Western Ave. was re-named Glenwood Ave. so the streetcar line became "Glenwood-4th Ave.". Destination signs were: "Glenwood", "Glenwood to Aldrich", "4th Ave. So. to 38th", and "4th Ave. So. to 48th".

1929

The "Chicago-Penn" and "Chicago-Fremont" lines had been operated as two separate lines until May 1st when they were combined as far as crew and car assignments were concerned.

"Cedar Ave." line service to downtown ceased January 2nd and shuttle service began from 42nd and Cedar to 52nd and Bloomington, according to the company bulletin; however track from 50th and Cedar to 52nd St. and west to Bloomington was reported abandoned in 1928. The bulletin stated "Cedar to 52nd" signs would be used. "Cedar Ave." signs were used for operation to the 50th and Cedar loop.

1934

Effective September 1st the "Bryant-Johnson" line was re-routed via Lyndale — Hennepin — 8th St. S.E.

1935

The "Franklin-11th" line was combined with the "Robbinsdale" line May 18th to form the "Robbinsdale-Franklin" line. Route through downtown was: 4th Ave. S. — 11th St. — 1st Ave. N. — 2nd Ave. N. — 7th St. N. — Emerson — Broadway. It was operated from East Side and North Side Stations.

1936

Intercity service between Minneapolis and St. Paul through Fort Snelling was split into two separate lines July 5th when one-man operated cars were assigned to the lines. In Minneapolis the "Fort Snelling-Minnehaha-Plymouth" line operated as follows: "Fort Snelling": from the Ft. Snelling wye to Plymouth and Sheridan; "Minnehaha-Plymouth": from Minnehaha Falls loop to Plymouth and Sheridan. "Minnehaha-54 to 47" signs were used on southbound cars to the wye at 47th Ave. So. and 54th St., opposite the Veterans Hospital.

1938

Because of the abandonment of the "St. Louis Park" line and the "Kenwood" portion of the "Kenwood-E. 25th" line, the remainder was operated as the "E. 25th Street" line, routed via Washington — 5th Ave. So. — 5th St. S. — to the wye at 5th St. N. and 5th Ave. No.

Sunday service on the "Nicollet-N.W. Terminal" line was discontinued April 3rd.

1939

The "E. 25th Street" line was combined with the 6th Ave. N. portion of the "Interurban" line to form the "6th Ave. N.-E. 25th St." line, routed via Washington — 5th Ave. So. — 5th St. — 6th Ave. N. "6 Ave. N.-East 25" signs were used. This was effective June 15th. The "Interurban" line was cut back to the wye at 5th Ave. N. and 5th St.; routing continued via Washington — 5th Ave. So. — 5th St. except for certain rush hour trips which operated via Washington — 4th Ave. So. — 3rd St. — 1st Ave. N. — 5th St. — 5th Ave. So. — Washington.

1940

Because of trackage abandonments the following changes were effected: "6 Ave. N.-East 25 St." line was cut back May 25th to the 5th St. and 5th Ave. N. wye. The name of the line was never subsequently changed; destination signs used were whatever happened to be on the sign roll that included "E. 25th St.".

The "Robbinsdale-Franklin" and "28 Ave. S.-N. Emerson" lines were replaced by the "28 Ave. S.-Robbinsdale" line on November 29th. Routing was via Cedar — Washington — 5th Ave. So. — 5th St. — 1st Ave. N. — Washington — Broadway. However certainmorning rush hour trips continued to be made to 36th Ave. N. and Fremont until August 19, 1950, using the "28 Ave. S.-N. Emerson" signs.

1942

The route of the "Grand-Monroe" line was changed September 21st to Marquette — 1st St. — Hennepin — Central — Monroe.

1946

Effective February 16th the following re-combination of lines took place:

"Plymouth-E. 25th St." line, routed via Washington — 5th Ave. So. — 5th St. — 1st Ave. N. — Washington. Destination signs used were: "Plymouth-E. 25 St.-Ford Pl."; "Plymouth-E. 25 St. to 45", and "Plymouth-E. 25 St. to 41".

"Fort Snelling-Minnehaha" line, routed via Washington — 4th Ave. So. — 3rd St. — 2nd Ave. N. — Washington. Destination signs used were: northbound: "Loop"; southbound: "Minnehaha Falls", "Fort Snelling", "Minnehaha-54 to 47".

Beginning April 19th "Selby-Lake" line cars were to turn on the Girard Substation wye and pull-out from Girard Ave. instead of backing to Hennepin Ave. and Lake St. and using the crossover on Lake St.

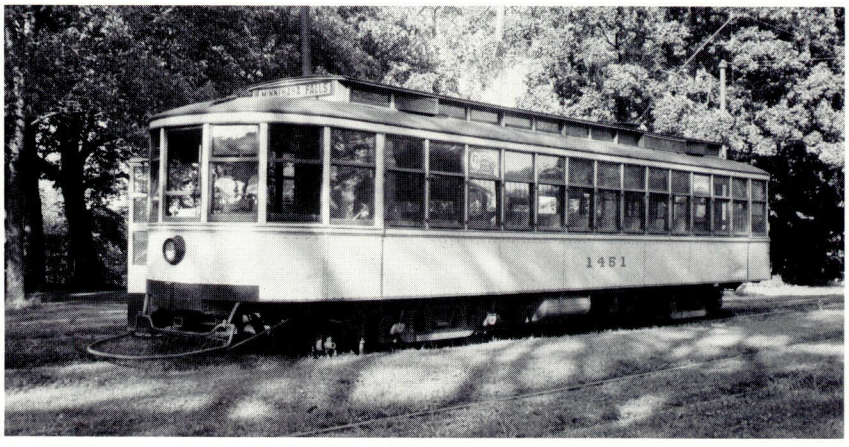
1947

The "34 Ave. So.-N. Bryant" line was cut back on the north end to 42nd Ave. N. and Washington due to track abandonment. The line was re-named "34 Ave. S.-N. Wash.".

1948

Because of the abandonment of the Robbinsdale trackage July 10th, the remaining portion was re-named the "28th Ave. So." line, routed via Cedar — Franklin — 4th Ave. So. — 5th St. to the wye at 5th St. and 5th Ave. N. The line was operated entirely from Lake St. Station.

A northbound "Bryant-Johnson" car crosses the streetcar bridge (note the gauntlet track) over Minnehaha Creek at Bryant Ave., Minneapolis. (James Foster collection)



Car 1451 on the Minnehaha Falls right-of-way, Minneapolis, August, 1948. (R. Donald Ross; James Foster collection)

Destination signs used were: northbound: "Loop"; southbound: "28 Ave. S. to 50th" and "28 Ave. S. to 56th".

New destination signs were prepared for the "Chicago-Penn-Fremont" line: "Chicago-Fremont-36", "Chicago-Fremont-44", "Chicago-Fre.-Oliver", "Chicago-Penn-38" (later "Chicago-Penn-Dow." (Dowling Ave. N.), "Chicago-Penn-42", "Chicago to 38th", "Chicago to 48th", and "Chicago to 54th".

1950

Due to abandonment of the "28th Ave. So." line on August 19th the following re-arrangement took effect:

"Ft. Snelling-N. Washington" line, routed via Washington Ave. through downtown to 42nd Ave. N. and Washington. Destination sign read "Ft. Snelling-N. Wash.".

"34th Ave. So." line: 34th Ave. So. — 42nd St. —Cedar — Lake St. — Bloomington — Franklin — 4th Ave. So. — 5th St. — to the wye at 5th St. and 5th Ave. N. Destination signs used were: northbound: "Loop"; southbound: "Cedar to 42nd", "34th Ave. So. to 46th", and "34th Ave. So. to 54th".

1952

Due to abandonment of the Grand Ave. trackage October 18th, the "Nicollet-Monroe" line was established, routed via Marquette — 1st St. — Hennepin — Central — Monroe.

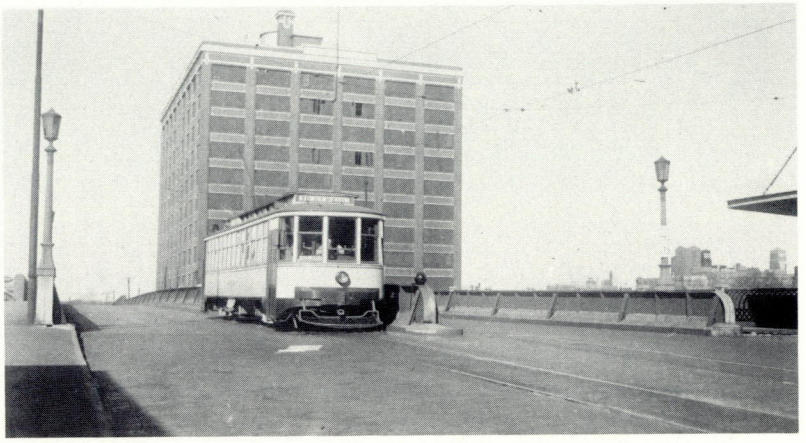
The downtown route of northbound "Chicago-Penn-Fremont" line cars was changed September 13th because of the establishment of one-way street systems, to 6th St. — 1st Ave. N. — 8th St. — 2nd Ave. N. — 7th St. N. Southbound cars continued to use the previous route.

"Bloomington-Col. Hts." line route changes in downtown were necessary due to track abandonments and one-way street systems: August 23rd: Franklin — 4th Ave. So. — 6th St. — 1st Ave. N. — 1st St. N. — Hennepin — Central; September 24th: northbound via Franklin — 4th Ave. So. — 5th St. — 2nd Ave. So. — 3rd Ave. So. — Central, and southbound via Central — Hennepin — Marquette — 6th St. — 4th Ave. So. — Franklin.

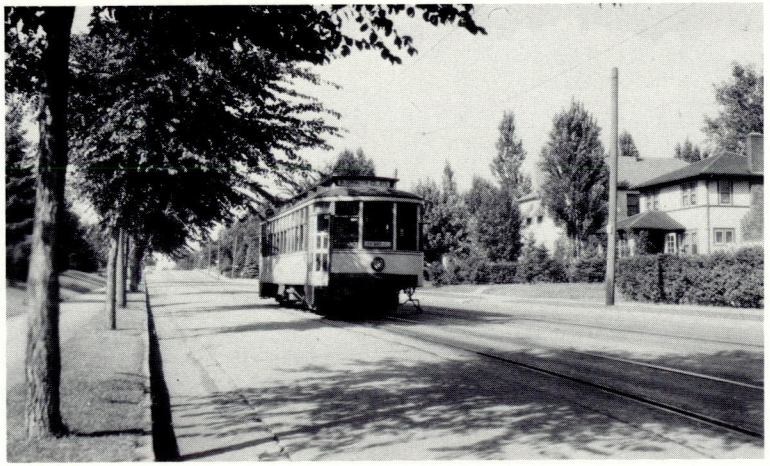
1953-1954

The final two years of operation constituted abandonment of the street railway system so no effort was made to list the routing changes that occurred.

A front exit "gate" car on the wye at 44th Ave. N. and Fremont Ave., Minneapolis. The "Chicago-Penn-Fremont" line used these cars extensively until 1950-1951. (Joe Hutchinson collection)

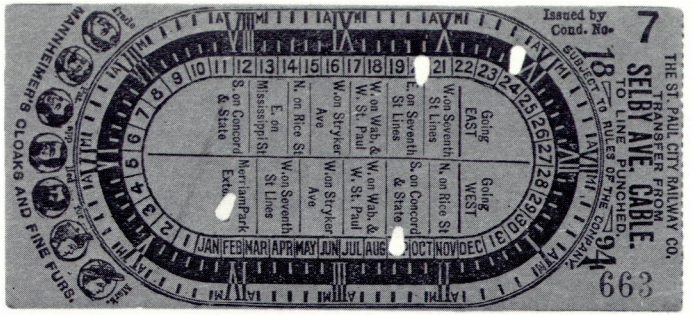


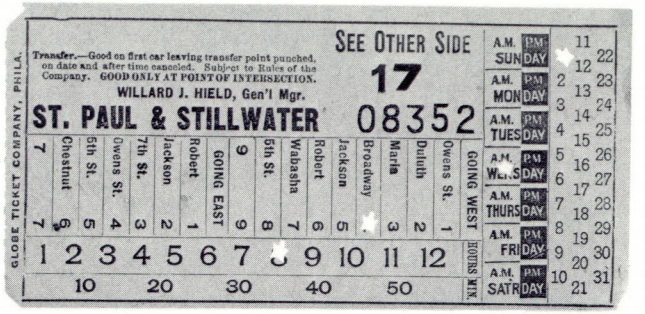
"To St. Paul" car 1407 eastbound on 5th St. N., Minneapolis, in operation typical of the "Interurban" line before the introduction of PCC cars. (James Foster collection)

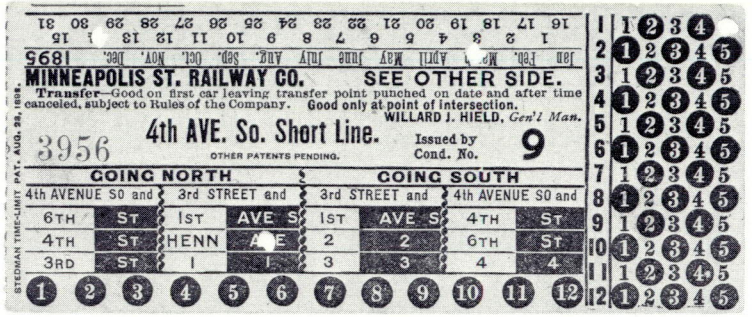


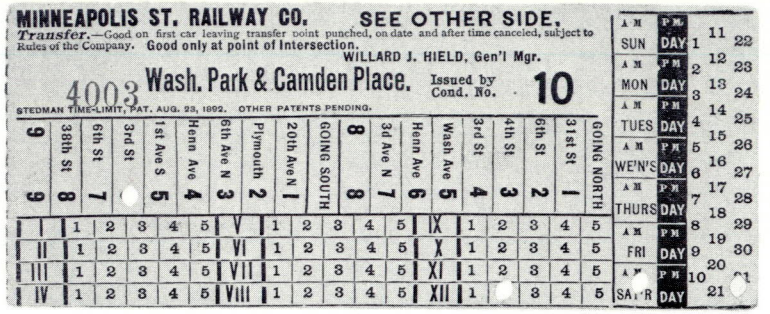
Car 1672 on Bloomington Ave., Minneapolis, arriving at the 54th St. wye. (William J. Olsen)

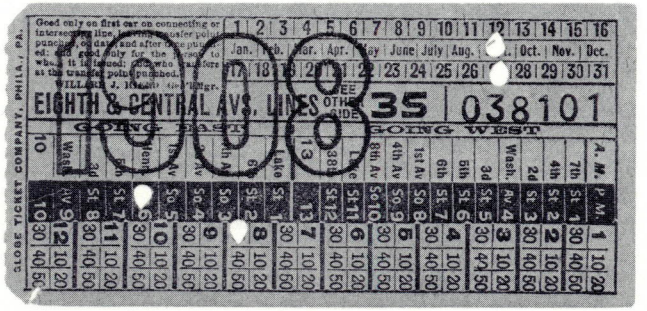
"Oak-Harriet" car 1325 eastbound on Hennepin Ave., Minneapolis, passing the Great Northern Ry.'s second passenger station, taken May 16, 1948. (W. C. Whitaker; James Foster collection)

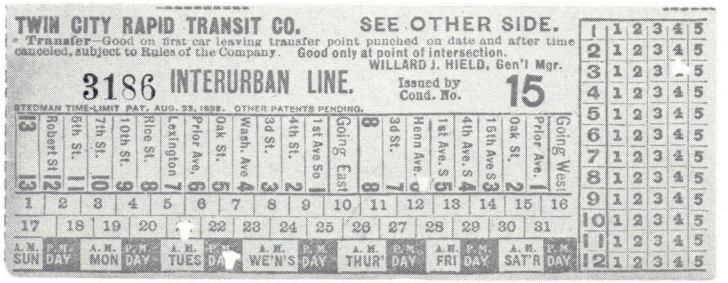

THE ST. PAUL CITY RAILWAY CO.
TRANSFER FROM
SELBY AVE. CABLE.
TO LINE PUNCHED.
SUBJECT TO RULES OF THE COMPANY.
Issued by Cond. No. 7
18
94
663
MANNHEIMER'S CLOAKS AND FINE FURS.
JAN FEB MAR APR MAY JUN JUL AUG OCT NOV DEC
Going EAST
Going WEST
S on Concord & State
Mississippi St
E on Mississippi St
N. on Rice St
W on Stryker Ave
W on Wab. & W. St. Paul
E on Seventh St Lines
W on Seventh St Lines
N. on Rice St
S on Concord & State
Merriam Park
W on Seventh St Lines
W on Stryker Ave
W on Wab. & W. St. Paul
S on Concord & State
N. on Rice St
W on Seventh St Lines


GLOBE TICKET COMPANY, PHILA.
Transfer.—Good on first car leaving transfer point punched, on date and after time canceled. Subject to Rules of the Company. GOOD ONLY AT POINT OF INTERSECTION.
WILLARD J. HIELD, Gen'l Mgr.
SEE OTHER SIDE
17
ST. PAUL & STILLWATER
08352
GOING EAST
GOING WEST
HOURS
MIN.
A.M. SUN P.M. DAY
A.M. MON P.M. DAY
A.M. TUES P.M. DAY
A.M. WE'NS P.M. DAY
A.M. THURS P.M. DAY
A.M. FRI P.M. DAY
A.M. SAT'R P.M. DAY

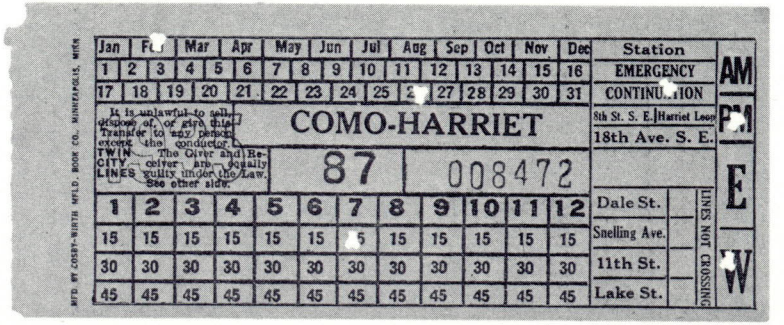

STEDMAN TIME-LIMIT PAT. AUG. 23, 1892.
MINNEAPOLIS ST. RAILWAY CO. SEE OTHER SIDE.
Transfer—Good on first car leaving transfer point punched on date and after time canceled, subject to Rules of the Company. Good only at point of intersection.
WILLARD J. HIELD, Gen'l Man.
3956
4th AVE. So. Short Line.
OTHER PATENTS PENDING.
Issued by Cond. No. 9
GOING NORTH
GOING SOUTH
4th AVENUE SO and 6TH ST
3rd STREET and 1ST AVE S
3rd STREET and 2
4th AVENUE SO and 6TH ST
3rd STREET and HENN AVE
3rd STREET and 1
4th AVENUE SO and 4TH ST
3rd STREET and 3
4th AVENUE SO and 3RD ST


MINNEAPOLIS ST. RAILWAY CO. SEE OTHER SIDE.
Transfer.—Good on first car leaving transfer point punched, on date and after time canceled, subject to Rules of the Company. Good only at point of intersection.
WILLARD J. HIELD, Gen'l Mgr.
4003
Wash. Park & Camden Place.
Issued by Cond. No. 10
STEDMAN TIME-LIMIT, PAT. AUG. 23, 1892. OTHER PATENTS PENDING.
GOING SOUTH
GOING NORTH
38th St
6th St
3rd St
1st Ave S
Henn Ave
6th Ave N
Plymouth
20th Ave N
Henn Ave
3d Ave N
Wash Ave S
3rd St
4th St
6th St
31st St
SUN DAY
MON DAY
TUES DAY
WE'N'S DAY
THURS DAY
FRI DAY
SAT'R DAY


GLOBE TICKET COMPANY, PHILA., PA.
EIGHTH & CENTRAL AVS. LINES
SEE OTHER SIDE
35
038101
GOING EAST
GOING WEST
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
Wash. Av.
8th Av
4th Av
1st Av
6th
5th
3d
1st
Wash. Av.
2d
4th
7th
A.M.
P.M.


TWIN CITY RAPID TRANSIT CO. SEE OTHER SIDE.
Transfer—Good on first car leaving transfer point punched on date and after time canceled, subject to Rules of the Company. Good only at point of intersection.
WILLARD J. HIELD, Gen'l Mgr.
3186 INTERURBAN LINE.
Issued by Cond. No. 15
STEDMAN TIME-LIMIT PAT. AUG. 23, 1892. OTHER PATENTS PENDING.
Going East
Going West
Robert St
5th St
7th St
10th St
Rice St
Lexington
Prior Ave.
Oak St.
Wash. Ave
3d St.
4th St.
1st Ave So
Henn Ave.
1st Ave. S
4th Ave. S
15th Ave S
Oak St.
Prior Ave.
A.M. SUN P.M. DAY
A.M. MON P.M. DAY
A.M. TUES P.M. DAY
A.M. WE'N'S P.M. DAY
A.M. THUR P.M. DAY
A.M. FRI P.M. DAY
A.M. SAT'R P.M. DAY

Good only on first boat from Excelsior to Big Island Park, on date and after time punched, and good only for the person to whom it is issued.
WILLARD J. HIELD, Gen'l Mgr.
Apr., May, June, July, Aug., Sept., Oct., Nov.
Series 17
No. 1614
Minneapolis & St. Paul Suburban R'y
(STEAMBOAT DIVISION)
EXCELSIOR to BIG ISLAND PARK
A. M.
P. M.


MFD. BY GLOBE TICKET CO., KINNEAPOLIS, MINN.
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Station
EMERGENCY
CONTINUATION
5th St. S. E. Harriet Loop
18th Ave. S. E.
It is unlawful to sell, dispose of, or give this Transfer to any person except the conductor. TWIN CITY LINES. The Giver and Receiver are equally guilty under the Law. See other side.
COMO-HARRIET
87
008472
Dale St.
Snelling Ave.
11th St.
Lake St.
LINES NOT CROSSING
AM
PM
E
W

Two cars of the 607-626 series northbound on Robert St., St. Paul, on the Ryan Hotel siding at 6th St., March 23, 1899. The Mannheimer Store building is on the left. Note the U.S. Mail box at the rear steps of the car and the brackets on the rear dash for the tail light lantern. (Minnesota Historical Society collection)

St. Paul

1890

Records of early St. Paul line routings are non-existent so we have been dependent upon transfers, photographs, and timetables. These lines operated during 1890 in the early stages of electrification: "Grand & West 7th", "Mississippi & Wabasha", "Wabasha & West St. Paul", "Rice & Wabasha", and of course, the "Interurban" between Minneapolis and St. Paul (the first through operation began December 9th). The "Selby Ave. Cable" and "E. 7th Cable" lines were also in operation.

1891

Continued electrification resulted in these *additional* lines beginning operation during 1891:

"St. Anthony Park & Hamline"; operated at first as the "Lexington Ave." or "Hamline" line.

"Rice & Concord" and "Rice & State" lines.

"Lafayette & Rondo" line; the eastern portion was completed first and operated as "Lafayette Ave." line until the western portion was completed. (Lafayette was another name for the Payne Ave. line.)

"7th St." and "Fort Snelling" lines.

"Maria Extension", from E. 7th St. and Maria Ave.

"Randolph Extension", from W. 7th St. and Randolph Ave.

"Merriam Park Extension", from Selby and Chatsworth.

We have been unable to determine what designation was applied to the line on Como Ave. from Rice St. to the intersection of Front and Dale St.

1892

The "Grand & West 7th" line designation was replaced by "Grand Ave."

The newly completed trackage on Jackson St. resulted in the formation of the "Jackson & Mississippi" line. We do not know what effect, if any, this had on other line routings.

The line on Como Ave. was extended to Como Park but no record has been located of the line designation.

1893

The "Wabasha & West St. Paul" line was re-arranged together with the "Jackson & Mississippi" line to form the "Mississippi & West St. Paul" and "Jackson St." lines.

With electrification of the cable line on E. 7th St., the following electric lines were operated: "7th St.": E. 7th St. and Duluth Ave. to W. 7th St. and Tuscarora St.; "Fort Snelling": E. 7th and Duluth to Fort Snelling wye; and "Maria Ave.": extended from 7th and Maria to 7th and Wabasha.

1894

The "Stryker Ave." line was opened July 1st.

1898

The "Union Depot Loop" line was opened November 1st, probably routed via Robert St. — 3rd St. — Sibley St. — 5th St. — Robert St.

The "Selby Avenue" electric line replaced the cable line and the "Merriam Park Extension" line; the route in downtown was: Selby Ave. — 3rd St. — 4th St. — Broadway — 5th St. — Rosabel St. — 4th St.

The "Como Interurban" was opened July 1st with the entire route described as: Como Ave. — County Road — Langford Ave. — Como loop (Churchill, Lexington and Langford Avenues) — Van Slyke — Chatsworth — Front — Como — Rice — Wabasha — 5th St. — Robert St. — 8th St. — Wabasha to Rice St., etc.

It was reported that the downtown route of the "Interurban" line was changed to coincide with that of the "Como-Interurban": Wabasha — 5th St. — Robert St. — 8th St. — Wabasha.

Apparently the "St. Anthony Park & Hamline" line was cutback and re-named the "Hamline" line due to opening of the "Como-Interurban" line.

1900

A street guide provided a listing of the lines operated and their general routings. Some of the line designations differ from those previously given.

"Interurban": (same downtown route as listed in 1898).

"Como Interurban": (same downtown route as listed in 1898).

"Lafayette & Rondo": Rondo — W. 10th St. — Wabasha — 5th St. — Broadway — Lafayette — Collins — Burr — Payne — Sims — Greenbrier.

"Rice & Concord": Rice — Wabasha — 5th — Robert — Concord.

"Rice & State": Rice — Wabasha — 5th — Robert — Concord — State.

"East & West 7th St." and "Fort Snelling".

"Fourth St.": Prior and University — Prior — Marshall — Fairview — Selby — 7 Corners — 4th St. — Broadway.

"Mississippi & West St. Paul": Smith Ave. and Annapolis St. — Smith Ave. — George St. — Ohio — Winifred — Wabasha — 5th St. — Broadway — Mississippi — York — Case — Arkwright — Brainerd — Edgerton.

"Stryker Ave.": 5th and Wabasha — Wabasha — Winifred — Stryker.

"Jackson St.": 5th and Jackson to Oakland Cemetery and Maryland and Courtland.

"Maria Ave.": 7th and Wabasha — 7th St. — Maria — Hastings — Earl to Indian Mounds Park.

"Hamline": 5th and Sibley — 5th St. — Wabasha — University — Lexington — Minnehaha — Snelling to Snelling and Como.

"Union Depot Loop": Wabasha — 5th St. — Robert — 3rd St. — Sibley St. — 5th St. — Robert — 8th St. — Wabasha.

"Grand Ave.": Grand Ave. (Groveland Park) — Ramsey — Oakland — 7th St. — Wabasha — 5th St. — Robert St. — 8th St. — Wabasha St. — 7th St.

"White Bear & Stillwater": from Cedar St. switch to Wabasha — 5th St. — Broadway — 7th St. and outbound; return on E. 7th St. to Cedar St.

Westbound car 764 of the "Selby Ave." line on 4th St., St. Paul, at Washington St. Note the large oil-burning tail light; men were stationed each evening at downtown street intersections to place these lights on the cars. The photograph was probably taken in early 1899 when the car was new as it is equipped with Bemis M.T. trucks. (Minnesota Historical Society collection)

1902

The following re-combination of lines took place: "Grand & Lafayette", (destination sign read "Laf. & Grove. Park), and "Rondo & Maria".

1903

As of December 28th the St. Paul Division consisted of the following lines, as listed on an old company form. Note the combination of the "Hamline" and "Jackson St." lines. "Selby Ave.", "Lafayette & Grand", "Rice, State & Concord", "7th St. & Ft. Snelling", "Miss. & West St. Paul", "Stryker Ave.", "Hamline & Jackson", "Maria & Rondo", "Union Depot Loop" and "Como Local".

1905

Due to completion of newly constructed trackage, the following new lines were opened:

"Snelling Ave.": on Snelling Ave. from Como Ave. to Grand Ave., September 2nd.

"S. St. Paul & Inver Grove" (route in downtown was not specified): opened to South St. Paul July 22nd and Inver Grove August 1st.

"Phalen Park": from the Main Ave. loop on W. 7th St. to Phalen Park, opened July 5th. Destination signs used were: "Payne Ave." (to Maryland and Forest); "Payne-Phalen" (to Phalen Park).

The "Grand & Lafayette" line was extended to Phalen Park July 16th. (Operation into Phalen Park was a summer-only operation at this time.)

A double end car began operating May 27th on Marshall St. from Prior Ave. to the east end of the Lake St. bridge.

1906

The "Selby-Lake" interurban line between Minneapolis and St. Paul began through operation May 21st. The route in St. Paul was on Marshall Ave. (from the Lake St. bridge) — Fairview — Selby — 3rd St. — 4th St. — Broadway — 5th St. — Rosabel St. — 4th St. "Selby Ave." cars ran from downtown St. Paul to Marshall and Prior; "Merriam Park" cars ran from downtown St. Paul to Prior and University.

The "Hamline & Jackson" line began operating over newly constructed trackage on the western portion which was placed in operation June 29th. The route through downtown was: Rice — Wabasha — 5th St. — Jackson.

The "Randolph Ave." line was opened July 14th from downtown St. Paul, routing not specified, to Randolph and on Randolph to Pascal St.

1908

The following re-arrangement of lines went into effect:

"Jackson & Stryker" line, routed via Jackson — 5th St. — Wabasha.

"Hamline-Union Depot" line, routed via Rice — Wabasha — 5th St. — Robert St. — 3rd St. — Sibley St. — 5th St. — Wabasha. (Schedule Dept. records list the line as going into operation October 8, 1907.)

1909

Upon completion of additional new trackage on June 21st, the "Randolph-Hope" line began operation. This apparently replaced the "Snelling Ave." line, for the cars operated from Snelling and Como, on Snelling to Randolph, thence on Randolph — 7th St. — Hope St. — E. 4th St. to E. 4th and Cypress St.

The "Snelling-Minnehaha" interurban line began operating June 21st, from E. 7th St. and Duluth Ave. on E. and W. 7th St. across the Mississippi River and through Fort Snelling into downtown Minneapolis. Local service continued to be operated from E. 7th and Duluth to W. 7th and Tuscarora by "Seventh St." line cars.

The "Grand Ave." line route was changed July 31st to W. 7th St. — 4th St. — Rosabel St. — 3rd St. — Broadway — 4th St. — W. 7th St. Destination signs used were: "Grand Ave.", "Grand to Cambridge", "Grand to Cretin" and "Grand to Snelling".

It is not known whether "Selby-Lake" line cars were changed to the same downtown route as "Grand Ave." line cars at this same time; it is known that as of May, 1912, they were using this route, that is, the 4th — Rosabel — 3rd — Broadway — 4th loop.

On July 28th, the "Rice-South St. Paul & Inver Grove" line was formed, routed through downtown via Wabasha — 5th St. — Robert St. in both directions. Destination signs used were: "South St. Paul": Rice and South to Concord and Marie; "So. St. Paul & Inver Grove": Rice and South to Concord and Linden; "Rice & State": Rice and South to Robert and Annapolis; "Rice & Concord": Rice and South to Concord and Witham. All northbound cars used "Rice & Concord" signs.

Lines operated out of E. 7th St. Station in 1909 were: "Stillwater-White Bear-Mahtomedi", "Rice-South St. Paul & Inver Grove", "Randolph-Hope", "Miss. & W. St. Paul", "Jackson-Stryker", "Rondo & Maria", and "Seventh St." (locals).

1912

It is not known just when this particular service was established, but by May, 1912, additional local service was provided in connection with the "Snelling-Minnehaha" line. The "Seventh St." line local cars continued to operate from E. 7th St. and Duluth Ave. to W. 7th St. and Tuscarora St. However the "Hazel Park" line was running from the Autumn St. and Hazel Ave. wye on the Stillwater right-of-way via East 7th St. to the Cedar St. loop (E. 7th St. — Cedar St. — 8th St. — Wabasha St. — E. 7th St.).

A May, 1912, directory lists cars operating from downtown St. Paul to the loop at Como Ave. and Hamline Ave. using a "Como Park" destination sign.

1913

The "Forest St." line began operating November 10th from the Cedar St. loop (7th St. and Wabasha St.) via E. 7th St. — Arcade — Case — Forest to a wye at Forest and Maryland. Some runs were operated out of Snelling Station.

1914

The "Dale-Phalen" line replaced the "Forest St." line upon completion of the new track on Dale St. October 23rd. The route was: Dale — Grand — 7th St. — Arcade — Case — Forest — Phalen Park. Destination signs in use were: "Dale St.": short line to Dale and Grand; "Dale-Forest": eastbound to Forest and Maryland and westbound to Dale and Maryland; "Dale-Phalen": Dale and Maryland to Phalen Park.

The "Payne-Phalen" line continued to operate as before.

The "Western-South Robert" line replaced the "Rice & State" line November 4th. The Western Ave. portion was newly constructed and the State St. portion was re-named as it actually was located on So. Robert St. at its southernmost end. Route through downtown was via Wabasha — 5th St. — Robert St. in both directions.

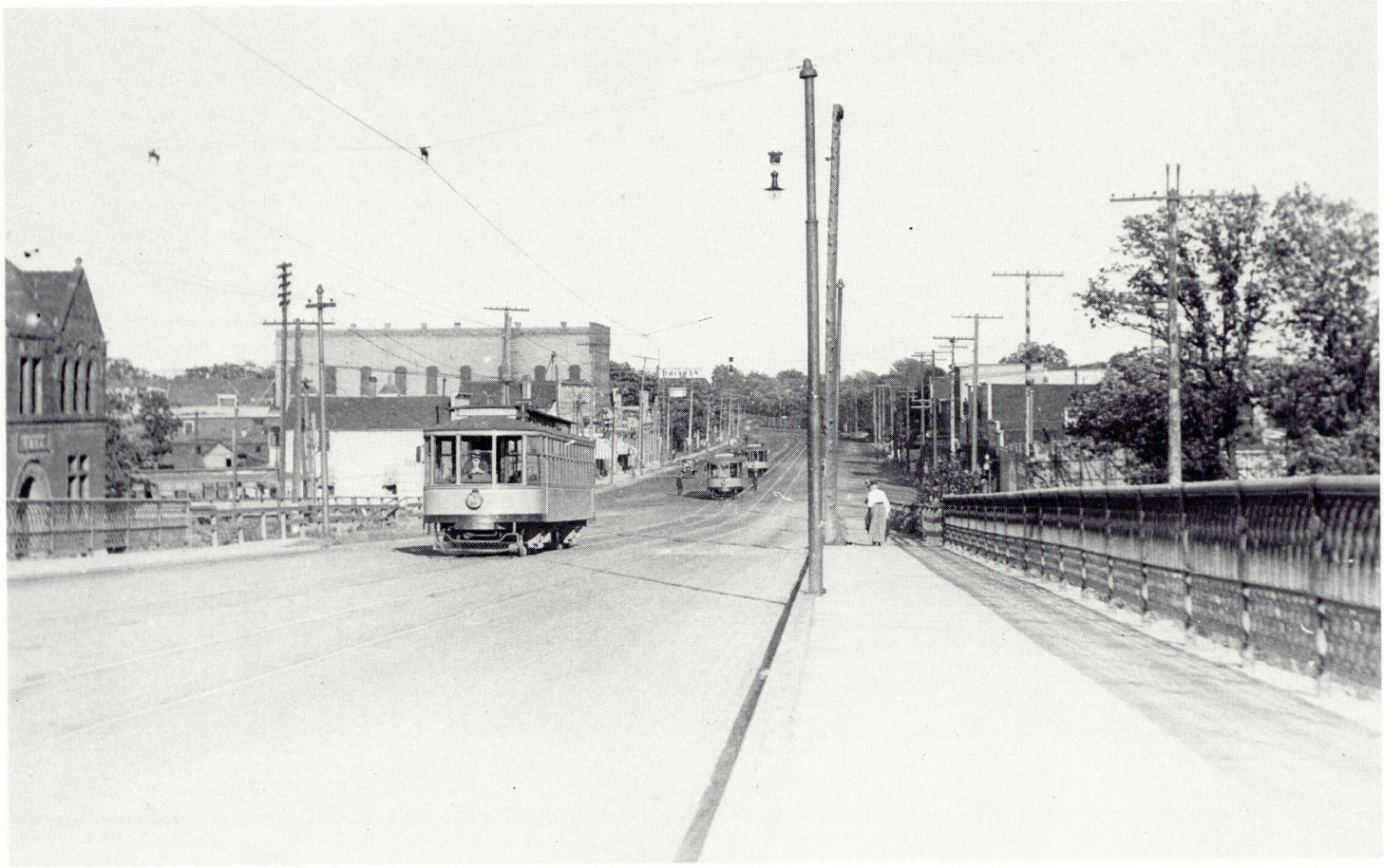
The single track on Burns Ave. from Earl St. to Clarence St. was operated with a double end shuttle car as the "Burns Ave. Extension" line connecting with the "Rondo-Maria" line at Earl St. This service had been ordered by the city council. SPCR decided to operate the line at no fare since the cost of a two-man crew exceeded the revenue; it was cheaper to operate the car with one man and forget fare collection.

1915

With construction of new trackage on St. Clair Ave., the "St. Clair-Hope" line was opened. The "Snelling-E. 7th St." line simultaneously began operating from Snelling and Como, on Snelling and Randolph, Randolph to 7th St., and on 7th St. to E. 7th and Duluth Ave. No mention was made as to how "Hazel Park" line service was provided; presumably the same route described in 1912 was still in operation.

Signs for long line cars on the "Grand Ave." line were changed from "Grand to Cretin" to "Groveland Park" in December.

On July 19th the designation of the "Miss. & West. St. Paul" line was changed to "Miss. & Cherokee Hts.".



"Interurban" line cars westbound on University Ave., St. Paul, on the approach to the bridge over the Minnesota Transfer Ry. tracks. Prior Ave. is the cross street at the foot of the bridge approach. (Norman F. Podas collection)

1916

The single track line built on Randolph Ave. from Snelling to Cleveland was operated as a shuttle service with double end cars, called the "Randolph Extension" line.

1917

A company bulletin stated that the "Hazel Park" line was "established" October 15th, operating from the Main Ave. loop on W. 7th St. to Hazel Park at the Maryland Ave. siding and wye on the Stillwater right-of-way. 15 minute headway was provided by extending "Snelling-E. 7th St." line cars. Destination signs read "Snell. Ave.-Hazel Park". Just how this relates to the 1912 service is obscure.

The "Payne-Phalen" line was extended over new track on Maryland Ave. from Forest St. to Duluth Ave. "Payne to Duluth" signs were used.

1920

As was the case in Minneapolis, a major change of routings was placed into effect in St. Paul in attempts to handle changed traffic patterns. Beginning November 8th these lines were placed in operation:

"Cherokee Heights": routed via Wabasha — 5th St. — Sibley St. — wye at 5th and Sibley — return via the same route.

"Rice-Stryker".

"South St. Paul & Inver Grove": routed via Robert St. — 8th St. — Wabasha — 5th St. — Robert St.

"Western-Jackson": routed via Rice — Wabasha — 5th St. — Jackson.

"Merriam-Mississippi": from Prior and University via Prior Ave. — "Selby-Lake" line trackage — 4th St. — Broadway — thence on Mississippi St. line trackage.

"Payne-Groveland" (also referred to as "Groveland Park-Payne Ave." line) (Groveland Park was on the "Grand Ave." line so in essence this was the revival of the former "Grand & Lafayette" line).

"Hamline-South Robert": routed via Wabasha — 5th St. — Robert St. in both directions. Effective December 22nd cars were instructed to wye at Prior and University, heading in on the east leg located on University Ave., lay over at the safety island, and then wye out.

1921

The "Interurban" and "Como-Harriet" lines were re-routed between September 3rd and October 28th as follows: eastbound: Wabasha — 5th St. — wye at 5th and Sibley and westbound: 5th St. — Robert — 8th St. — Wabasha.

A revision was placed in effect June 8th: "Snelling Ave." line, on Snelling Ave. between Como Ave. and Randolph Ave.; "Randolph-Hazel Park" line, using the destination signs indicated: "Hazel Park": eastbound to Maryland Ave. siding and wye on the Stillwater right-of-way; "Seventh-Snelling": westbound to Snelling and Randolph; "Seventh-Randolph": westbound to Randolph and Cleveland (shuttle service was eliminated, all cars running through), and "Seventh": pull-ins to Duluth Ave. Station.

1924

Upon completion of new trackage from Randolph and Cleveland to the Ford Plant, a shuttle car was used in rush hours only from January 21, 1924, until August 19, 1925, when through service was begun.

1927

A major re-combination of lines was placed into effect on August 1st, described below.

The "Fort Snelling-Minnehaha-Plymouth" line from Minneapolis, (formerly the "Snelling-Minnehaha" line) was extended from E. 7th St. and Duluth Ave. to Hazel Park (Maryland Ave. siding and wye on the Stillwater right-of-way), replacing service previously provided by the "Randolph-Hazel Park" line. The line name was changed to "7th-Minnehaha-Plymouth". Destination signs used were: "7th-Minnehaha-Plymouth": eastbound to 7th and Duluth; westbound to Plymouth and Sheridan in Minneapolis; "M'haha-7th-Hazel Park": eastbound to Hazel Park, and "Seventh-M'haha": westbound to downtown Minneapolis.

"Randolph-Hope" line was re-established.

"Grand Ave." line was re-established, routed downtown via 4th St. — Rosabel St. — 3rd St. — Broadway — 4th St. loop.

St. Clair-Payne" line. Destination signs used were: "St. Clair-Maryland": eastbound to Maryland and Duluth, and "St. Clair-Payne": eastbound to Maryland and Kennard.

A new wye was completed at Charles St. and Prior Ave. on the "Hamline-South Robert" line. Cars were instructed to pull in on Charles St., then back out and down to University Ave.

1931

Shuttle service ended September 23rd on Burns Ave. and regular "Rondo-Maria" line cars began running through.

1932

This was a year for many substantial changes. Loss of traffic caused by the automobile and the depression created the need for revisions. A listing of the new line combinations placed into effect is extensive.

On June 1st:

"Mississippi-Cherokee" line, routed via Wabasha — 5th St. — Broadway — Mississippi St. "Miss.-Cherokee Hts." signs were used.

"Merriam Park" line, routed from Prior and University, on Prior — Marshall — Fairview — Selby — 3rd St. — 4th St. — and 4th — Rosabel — 3rd — Broadway — 4th loop.

On July 13th:

"Western Ave." line operating to downtown.

"Jackson-Stryker" line.

"Rice-South St. Paul" line, routed northbound: Robert — 9th St. — Wabasha; southbound: Wabasha — 5th St. — Robert. Destination signs used were: "Rice-South St. Paul: northbound to Rice and Ivy; "South St. Paul-6th": southbound to 6th St. and Concord in South St. Paul; "S. St. Paul-Inver Grove": southbound to Concord and Linden. When operating over ex-St. Paul Southern Electric Ry. trackage to Francis and Faulkner in Inver Grove, a window board was used which read "To Faulkner Ave.".

Upon abandonment of the line from Wildwood to Stillwater on August 11th:

"7th-Minnehaha-Plymouth" line was shortened to: W. 7th St. — 4th St. — Rosabel St. — 3rd St. — Broadway — 4th St.

"Grand Ave." line was extended to Mahtomedi as the "Grand-Mahtomedi" line. "Grand-Mahtomedi" and "Grand-Hazel Park" signs were used.

The "Western Ave." line was cutback from downtown September 9th when it was converted to one-man operation, using a double end shuttle car on Western from Como Ave. to Cook St.

The August 11th changes did not work out too well so on September 11th these changes were made:

"Grand Ave." line re-established.

"Randolph-Hazel Park" line re-established and extended to Mahtomedi as the "Hazel Park-Mahtomedi" line.

"Minnehaha-7th-Hope" line, running from E. 4th St. and Atlantic, via E. 4th — Hope St. — E. 7th St. — W. 7th St. — Fort Snelling — to Plymouth and Sheridan in Minneapolis.

The "Merriam Park" line, beginning September 8th, was operated with a double end shuttle car between 8:37 A.M. and 4:30 P.M. on Prior Ave. from Marshall to University. Otherwise the line operated to downtown.

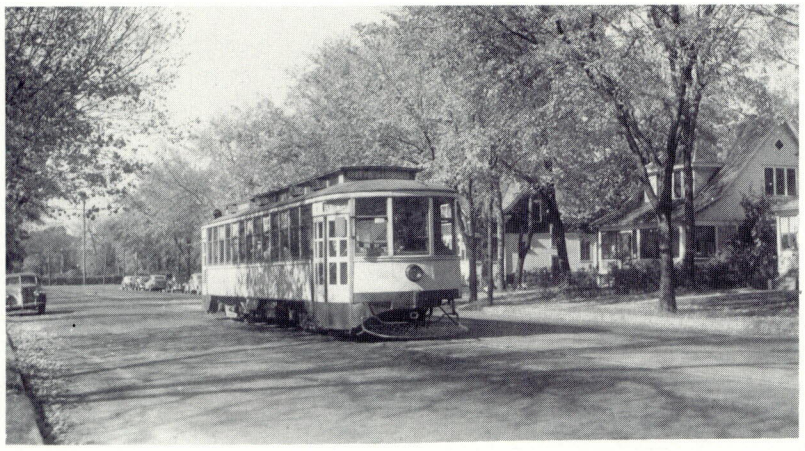
This Page

"Selby-Lake" car westbound on Selby Ave., St. Paul, at Snelling Ave. about 1936. (Minnesota Historical Society collection)

Facing Page

A St. Paul Southern Electric Ry. car southbound on Robert St., St. Paul, about 1927, having just crossed 3rd St. (Buckbee-Mears Co.; Ken Fletcher collection)

THWESTERN
MP WORKS
teel, Brass Stamp Mfrs.
MERCHANTS NATIONAL BANK
MERCHANTS TRUST COMPANY
SAFE FOR SAVINGS
RYAN TRANSFER & STORAGE CO.
ROOMS 25
43456-



"Grand-Mississippi" car 1842 eastbound on Grand Ave., St. Paul, having just left the Cretin Ave. wye. (James Foster collection)

"Maria-Ft. Snelling-47 Ave." car 1649 on the Burns Ave. single track, St. Paul. (James Foster collection)

1935

A new wye was completed June 17th at Oakley and Prior; cars were instructed to head in on Oakley, then back out and down to University Ave.

1936

The "Minnehaha-7th-Hope" line ended interurban operation when it was converted to all one-man operation on July 5th. It was split into two parts, the St. Paul segment being operated as the "Fort Snelling-7th-Hope" line. Destination signs used were: "Fort Snelling": westbound to Fort Snelling wye; and "Hope-W. 7th-47 Av.": from E. 4th St. and Atlantic (St. Paul) to 47th Ave. So. and 54th St. (Minneapolis).

1938

Because of trackage abandonments and the need to reduce traffic congestion downtown, the "Hamline-Stryker" line was established October 29th from the remaining portions of certain of the abandoned lines. Apparently other existing lines were re-routed but details were not provided.

1939

The "Fort Snelling-7th-Hope" line was cutback to the Fort Snelling wye August 26th but was restored to 47th Ave. So. and 54th St. November 18th.

On December 2nd a grand re-arrangement of line combinations went into effect. The results were: "Hamline-Cherokee" line; "Rondo-Stryker" line; "Grand-Mississippi" line, routed via W. 7th St. — 4th St. — Broadway — Mississippi St.; "Maria-Ft. Snell.-47 Av." line, operating over the Maria line, and on E. and W. 7th St. through Ft. Snelling to 47th Ave. S. and 54th St. in Minneapolis.

1948

Because of track abandonments, the "Dale-Phalen" line was re-routed April 5th via E. 7th St. and Payne Ave. line trackage to Forest and Maryland and thence to Phalen Park. Upon abandonment of additional trackage on October 30th the line was split up as follows:

"Dale St." line, routed via Dale St. — Grand — W. 7th — 4th St. — Rosabel — 3rd St. — Broadway — 4th St. Signs used were: "Dale-Maryland" and "Dale-Wheelock".

"St. Clair-Payne-Phalen line: signs used were:

"St. Clair-Payne-Forest": to Forest and Maryland.

"St. Clair-Payne-Phalen": to Phalen Park. Route was via W. and E. 7th St. to Payne Ave. line trackage.

1950

The "Maria-Ft. Snell-47 Ave." line was cutback to the Fort Snelling wye.

1951-1953

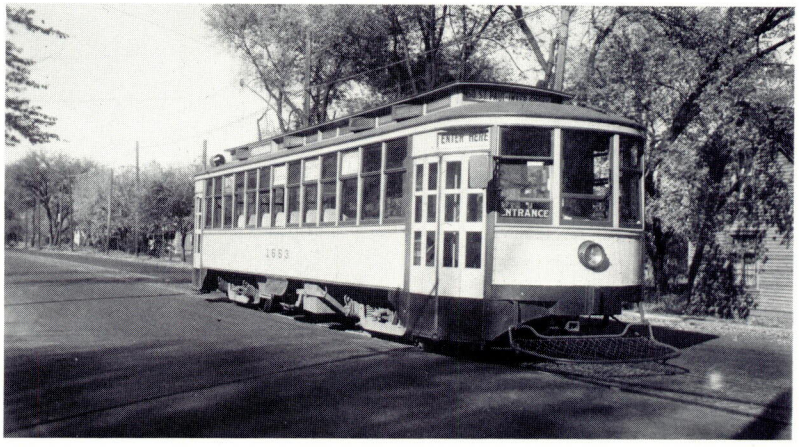
Abandonment of the street railway system in its entirety took place in these years so no attempt has been made to record any further route changes.

Schedule Speed

In 1931 the system-wide average schedule speed was 10.88 miles per hour (including layover time) and 13.5 miles per hour without layover time. This was the fastest speed attained by any comparable urban street railway in America.

The system-wide average schedule speed as of May 20, 1946, (without layover time) was:

Rush Hour	11.4 miles per hour;
Day	12.6 miles per hour;
Night	12.8 miles per hour; and
Owl	14.2 miles per hour



Car 1553 southbound on Concord St., South St. Paul, approaching the wye at Linden St. (Byron D. Olsen collection)

Destination Signs

Passenger cars were equipped with roller destination signs having thirty readings per roll. Each car station had certain series of readings on its signs, so that when cars were re-assigned to other car stations, the destination sign rolls had to be removed and replaced. Each car carried three sign rolls, all displayed in the deck roof, one at the front and one on each side near the rear of the car. Black letters on a white background was standard practice, until the PCC cars arrived which carried signs with white letters on a black background; thereafter all new or replacement signs for standard cars were white on black.

When the first front exit cars were placed in operation, wooden signs were introduced with the words "ENTRANCE" on one side and "EXIT ONLY" on the other which were set in brackets located on the inside right front vestibule window. (These signs were painted yellow and black, with yellow letters on black background on one side and black letters on yellow background on the other side. "EXIT ONLY" was the normal reading for local cars. However on the interurban lines between Minneapolis and St. Paul, "ENTRANCE" was used on inbound cars in either city, the signs being changed by the motorman at the city limits. When one-man cars were introduced, the sign was normally left at "ENTRANCE". As lines were extended or new wyes built similar wooden signs were used, black letters on yellow background, placed in the inside center front vestibule window, lettered for the new destination as an adjunct to the roll signs. Some of these signs were only temporary until the proper additions could be made to the sign rolls, while others became permanently used as an aid to identification of the cars' destinations.

A typical example of the use of destination sign rolls is the list that went into effect October 24, 1919. There was one set of readings for all cars at Nicollet Station and one set for all cars at North Side Station. High-speed Suburban cars for the "Lake Minnetonka" line assigned to East Side Station and for the "Stillwater" line assigned to Duluth Ave. Station had special sets of signs for the suburban runs plus a few local signs to be used during the winter months by those cars that lost their high-speed trucks and motors to the snow plows. For example, "Lake Minnetonka" cars always had signs for the "Kenwood" line and "Stillwater" cars had signs for the "Rondo-Maria" line. At Snelling, East Side, and Lake St. Stations there were different sets of signs for "fast cars" and for the older "slow cars". Due to continual changes in trucks, motors, and controllers it is impractical to provide an exhaustive listing, but in general the following situation existed: "fast cars" with G.E. 200, 203, 213 and 216 motors: 1166-1195, and 1288-1854; and "slow cars" with G.E. 67, 70 and WP 50 motors: 737-1111, 1124-1144, 1164-1165, 1196-1254, and 1266-1287. (High-speed suburban cars: 1112-1123, 1145-1163, 1255-1265). At Lake St. and East Side Stations certain readings were added to or omitted from sign rolls of cars with St. Paul licenses. (The City of St. Paul very early passed an ordinance requiring licensing of streetcars operated within the St. Paul city limits at a rate of $25 per car per year. Metal license plates were issued, similar to automobile plates, of large size at first, and of quite small size toward the end of operations, which were fastened to the poleside of the rear bulkhead.) Many cars had readings for lines which did not operate out of the station to which they were assigned but which were needed for extras and special service. In the early years of electrifica-

tion, all lines operated around the High St. loop in downtown Minneapolis, and some later "looped" through downtown on other streets. Similar circumstances existed in St. Paul. Thus the sign reading "LOOP" was used for cars that would "loop" through the downtown district rather than running through. (The loop route was not displayed on the cars so passengers had to learn from experience just where the cars ran downtown.)

The readings are given in the exact sequence specified by the General Superintendent.

MINNEAPOLIS DESTINATION SIGN LIST

1.	FAIR GROUNDS	All cars
2.	CIRCUS GROUNDS	Nic. and N.S. cars
3.	BALL GROUNDS	Nic. and N.S. cars
4.	CHARTERED	All cars
5.	NOT IN SERVICE	All cars
6.	TO STATION ONLY	Nic. and N.S. cars; E.S. 'Tonka cars
7.	FOOTBALL FIELD	Nic., Lake and all E.S. cars
8.		All cars
9.	TONKA BAY	E.S. 'Tonka and fast cars
10.	LAKE MINNETONKA	E.S. 'Tonka and fast cars, Lake fast cars, and all Nic. and N.S. cars
11.	EXCELSIOR LIMITED	E.S. 'Tonka and fast cars
12.	EXCELSIOR EXCURSION	E.S. 'Tonka and fast cars, Lake fast cars, and all Nic. and N.S. cars
13.	DEEPHAVEN	E.S. 'Tonka and fast cars
14.	HOPKINS	E.S. 'Tonka cars
15.	COMO-HOPKINS	E.S. fast cars
16.	LOOP	All E.S. cars
17.	COMO to MPLS. LOOP	E.S. fast cars
18.	EAST MPLS. STATION	E.S. local cars
19.	COMO AVE. to EUSTIS	All E.S. cars
20.	COMO-HARRIET	All E.S. cars
21.	OAK-HARRIET	All E.S. cars
22.	OAK-XERXES	All E.S. cars
23.	LAKE HARRIET	All cars except licensed Lake St. cars
24.	15th & COMO	All E.S. cars
25.	HENNEPIN to LAKE	All E.S. cars
26.	CALHOUN BEACH	E.S. local cars
27.	ROBBINSDALE-ST. LOUIS	E.S. local cars
28.	BRYN MAWR	E.S. slow cars
29.	KENWOOD-25th	All E.S. cars
30.	MONROE-BRYANT	Nic. cars
31.	BRYANT to 38th	Nic. cars
32.	LYNDALE to LAKE	Nic. cars
33.	GLENWOOD	Nic. and N.S. cars
34.	WESTERN-4th AVE.	Nic. cars
35.	WESTERN to ALDRICH	Nic. cars and E.S. slow cars
36.	4th AVE. to LAKE	Nic. cars
37.	LOOP	Nic. cars
38.	GRAND-JOHNSON	Nic. cars and all E.S. local cars except licensed cars
39.	NICOLLET to 54th	Nic. cars
40.	NICOLLET to 50th	Nic. cars
41.	NICOLLET to 38th	Nic. cars
42.	NICOLLET to HIGH	Nic. cars
43.	NICOLLET to 31st	Nic. cars and all E.S. local cars except licensed cars
44.	2nd ST. N.E.	Nic. cars

45.	2nd ST. N.E. to LOWRY	Nic. cars
46.	SELBY-LAKE	Lake St. fast cars
47.	LAKE to 36th	Lake St. and Nic. cars
48.	LAKE to 22nd	Lake St. cars
49.	TO PRIOR	Lake St. licensed cars only
50.	TO SNELLING AVE.	Lake St. licensed cars only
51.	SNELLING-MINNEHAHA	Lake St. fast cars and N.S. cars
52.	FORT SNELLING	All Lake St. and N.S. cars
53.	MINNEHAHA FALLS	Nic. and N.S. cars
54.	MINNEHAHA-PLYMOUTH	All Lake St. cars
55.	WASHINGTON-RIVERSIDE	All Lake St. cars
56.	FRANKLIN-11th	All Lake St. cars
57.	RIVERSIDE to LAKE	All Lake St. cars
58.	LOOP	All Lake St. cars
59.	BLOOMINGTON-CENTRAL	All Lake St. cars and E.S. local cars
60.	BLOOMINGTON-COL. HTS.	All Lake St. cars and E.S. local cars
61.	CENTRAL to 40th	All Lake St. cars and E.S. local cars
62.	BLOOMINGTON to LAKE	All Lake St. cars and E.S. local cars
63.	CEDAR	All Lake St. cars
64.	NOKOMIS-CAMDEN	All Lake St. and N.S. cars
65.	50th-CAMDEN	All Lake St. and N.S. cars
66.	38th-CAMDEN	All Lake St. and N.S. cars
67.	CEDAR to LAKE	All Lake St. and N.S. cars
68.	N. LYNDALE to 51st	All Lake St. and N.S. cars
69.	N. WASH. to N. 24th	N.S. cars
70.	LOOP	N.S. cars
71.	CHICAGO-FREMONT	N.S. cars
72.	CHICAGO-PENN	N.S. cars
73.	CHICAGO-EMERSON	N.S. cars
74.	CHICAGO to LAKE	N.S. cars
75.	BROADWAY-20th	N.S. cars
	INTER CAMPUS SPECIAL	E.S. cars 1079-1084

ST. PAUL DESTINATION SIGN LIST

1.	FAIR GROUNDS	All cars
2.	CIRCUS GROUNDS	All cars
3.	BALL GROUNDS	All Dul. cars
4.	CHARTERED	All cars
5.	NOT IN SERVICE	All cars
6.	TO STATION ONLY	All Dul. cars
7.	FOOTBALL FIELD	All Snell. cars
8.		All cars
9.	ST. PAUL-STILLWATER	Dul. Stillwater cars
10.	ST. PAUL-WILDWOOD	All Dul. cars and Sn. fast cars
11.	HAZEL PARK	All Dul. cars
12.	MAHTOMEDI	All Dul. cars
13.	WHITE BEAR	All Dul. cars
14.	MAHTOMEDI-WHITE BEAR	Dul. Stillwater cars
15.	WILDWOOD	Dul. Stillwater cars
16.	TO MINNEAPOLIS	Snell. G.E. 70 and fast cars
17.	TO MINNEAPOLIS-6th AVE.	Snell. G.E. 70 and fast cars
18.	TO ST. PAUL	Snell. G.E. 70 and fast cars
19.	UNIV. to SNELLING	All Snell. cars
20.	CITY LIMITS	Snell. G.E. 70 and fast cars
21.	COMO PARK	All cars
22.	SELBY to SNELLING	Snell. fast cars

23.	TO PRIOR	Snell. fast cars
24.	MERRIAM PARK	Snell. fast cars
25.	HAMLINE-UNION DEPOT	All Snell. cars
26.	GRAND to SNELLING	All Snell. cars
27.	GROVELAND	All Snell. cars
28.	LOOP	All Snell. cars
29.	PAYNE-PHALEN	All Snell. cars
30.	PAYNE	All Snell. cars
31.	PAYNE to DULUTH	All Snell. cars
32.	DALE-FOREST	All Snell. cars
33.	DALE-PHALEN	All Snell. cars
34.	WESTERN-S. ROBERT	All Snell. cars
35.	DALE	All Snell. cars
36.	RICE-CONCORD	Dul. local cars
37.	SOUTH ST. P.-MARIE	Dul. local and Snell. slow cars
38.	SOUTH ST. P.-6th	Dul. local and Snell. slow cars
39.	INVER GROVE	Dul. local cars
40.	RICE	Dul. local cars
41.	LOOP	All Dul. cars
42.	ST. CLAIR to SNELLING	Dul. local cars
43.	ST. CLAIR-HOPE	Dul. local cars
44.	SEVENTH-SNELLING	All Dul. cars
45.	SEVENTH-RANDOLPH	All Dul. cars
46.	SNELLING to GRAND	Dul. local cars and all Snell. cars
47.	SNELLING to RANDOLPH	Dul. local and all Snell. cars
48.	FORT SNELLING	All Dul. cars
49.	SEVENTH	All Dul. cars
50.	JACKSON-STRYKER	Dul. local cars
51.	MISS.-CHEROKEE HTS.	Dul. local cars
52.	RONDO-MARIA	All Dul. cars

The "Interurban" Line

At the time the first line was constructed between Minneapolis and St. Paul (1890), the two cities were some distance apart with open country between them. Thus the name "Interurban" was selected for the line. Seven minute headway was provided with the running time being 54 minutes to St. Paul, and 51 minutes to Minneapolis. This line was always regarded as TCRT's best; it always received the newest cars and features. In later years most of the line on University Ave. in St. Paul was equipped with concrete safety islands for passenger boarding and alighting. By 1914 the running time was 50 minutes one way, with four minute headway provided all day plus two minute headway during rush hours.

U.S. Mail Service

Mail service began August 1, 1891, when twelve cars on the "Interurban" line were equipped with mail boxes similar to the original small U.S. Mail street corner boxes. Made of sheet iron they were fastened to the right-hand front side of the cars convenient to passengers as well as persons who wanted to deposit mail without boarding the cars. Each car carried an American flag and was lettered on the side "U.S. MAIL". Mail boxes were painted the same color as the streetcars. They were emptied at both ends of the line by postal agents. By 1894 all streetcars operating in Minneapolis and St. Paul were equipped with mail boxes. The location of the mail boxes on the standard passenger cars was on the rear-most gate post. This service lasted into the 1900's but just when it was discontinued has not been learned.

Sightseeing and Excursion Services

The first reference to sightseeing cars being specially operated is recorded in 1898, when two "sightseer" cars were run weekdays from July 23rd through August 31st.

A newspaper article dated July 19, 1901, reported that an old "Whaleback" streetcar had been rebuilt with interior partitions forming rooms so that the park refreshment concessionaire could sleep in the car. He made daily trips to company-operated facilities at Lake Harriet, Lake Como, and Wildwood. The car was kept at the Lake Harriet siding; leaving there at 1:00 A.M. it made the necessary stops, and arrived at Wildwood about 4:00 A.M. The operator slept until 11:00 A.M. and then took the car on advertising cruises of Minneapolis and St. Paul, the ads being attached to the sides of the car, promoting sightseeing, excursion and pleasure travel on the streetcar lines.

Early promotional literature advocated sightseeing and excursion traffic by heavily advertising the Lake Minnetonka and Stillwater operations. As an example a 1910 pamphlet listed the various destinations possible together with mileage, travel time and fares:

From	To	Miles	Time	One-way Fare
Minneapolis	Excelsior	18	45 min.	25 cents
Minneapolis	Deephaven	18	45 min.	25 cents
Excelsior Terminal Docks	Big Island		8 min.	No extra ferry boat fare on electric car tickets from Twin Cities
Excelsior Terminal Docks	Any point on Lake Minnetonka			10 cents (express boat)
St. Paul	Wildwood	12	40 min.	15 cents
Wildwood	White Bear	5	13 min.	10 cents
Wildwood	Stillwater	8	25 min.	15 cents
St. Paul	Stillwater	20	60 min.	30 cents
Stillwater	South Stillwater	5	20 min.	10 cents

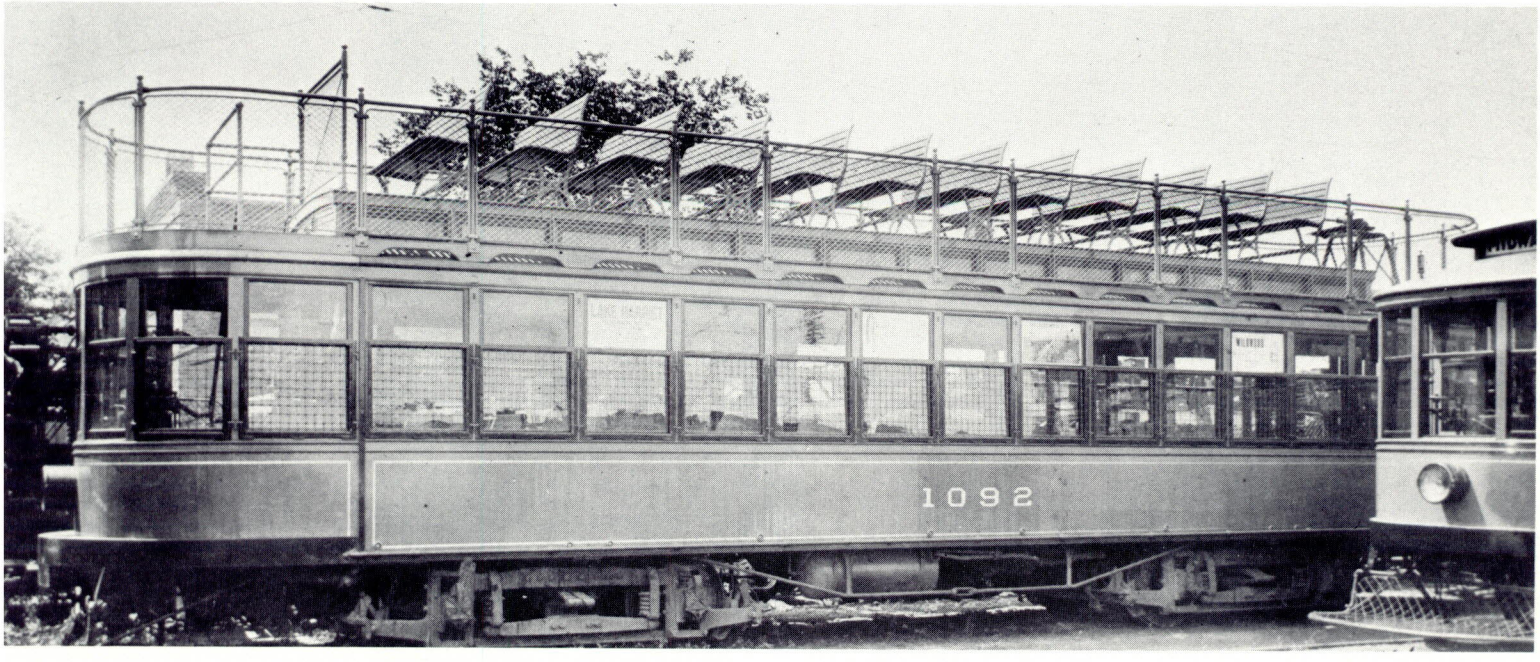
The same pamphlet listed the special "Sightseer" streetcar service which was begun May 23, 1906. All "Sightseers" followed a general belt route between Minneapolis and St. Paul: the "Como-Harriet" line going and the "Selby-Lake" line returning. All "Sightseers" began and ended at the Ryan Hotel, 6th St. & Robert St., St. Paul, or the West Hotel, 5th St. & Hennepin Ave., Minneapolis. The three "Sightseer" excursion trips offered were:

"Twin City Sightseer": Belt route and Indian Mounds Park in St. Paul, 3 hours, 35 miles, fare 50 cents.

"Wildwood Sightseer": Belt route, Minnehaha Falls, and Wildwood Park, 5 hours, 58 miles, fare 75 cents.

"Minnetonka Sightseer": Belt route, Lake Minnetonka, plus an express steamer tour of the Upper and Lower Lakes, 5 hours, 72 miles, fare $1.00.

Company records do not indicate the complete history of the "Sightseer" service. Presumably it ended with the advent of World War I. From approximately 1906 through 1917 the General Passenger Agent, A.W. Warnock, published annually a beautifully illustrated and well written brochure, in color with numerous well-drawn maps, entitled "Twin Cities Today" (Twin City Trolley Trips), which served as a complete guide to the entire street railway system, city and suburban. This was written with such clarity that any visitor or tourist could easily determine his own itinerary and schedule. World War I put an end to this type of promotion and it was never resumed. Timetables, car cards, newspaper advertising and other media were utilized to publicize the company's pleasure activities.



Double deck car 1092 as originally built in 1904 for sightseeing service. Photograph was taken at the 31st St. Shops, Minneapolis. (Minnesota Historical Society collection)

Car Assignments to Stations

As would be expected of a street railway system the size of TCRT, the assignment of individual cars to the operating stations was continually being altered as cars were built, rebuilt, or upgraded mechanically, and as traffic patterns and line routings or combinations of lines were changed. The manuscript division of the Minnesota Historical Society contains a collection under the name of this author, which among many things, includes a detailed compilation made by Edwin H. Nelson of the various car assignment changes from 1909 until 1954; persons interested in more extensive details on this subject are referred to this compilation. However, as illustrative examples, we have arbitrarily selected a few situations we thought interesting.

Lake St. Station was opened in December, 1910; the following cars were transferred from other stations to operate the lines listed:

608-626 and 832-836 from East Side Station for the "8th Ave. S. & Emerson" line; 752-757 and 900-909 from East Side Station for the "8th Ave. S. & 20th Ave. N." line; 813-816, 1124-1142 and 1217-1228 from East Side Station for the "Minnehaha Falls & Riverside" line; 992-1048 from Bloomington Station for the "Plymouth & Bloomington" and "Cedar-Camden" lines; 1179-1200 and 1241-1255 from Snelling Station for the "Snelling-Minnehaha" line; and 1391-1420 from 31st St. Station for the "Selby-Lake" line.

Car Assignments as of April 29, 1912 (not complete as to service equipment):

East Side Station (156 passenger cars)
- 737-751
- 817-836
- 877-879
- 897-899 (double end)
- 910-914
- 1119-1123 (high speed suburban)
- 1143-1144
- 1145-1161 (high speed suburban)
- 1321-1340
- 1360-1390
- 1466-1475
- 1517-1541
- Snow Plows 24, 25 and 29
- Wire Cars 3 and 5
- Sand Car 45

Nicollet Station (149 passenger cars)
- 976-991
- 1049
- 1053-1107
- 1201-1216
- 1229-1240
- 1266-1281
- 1476-1481
- 1572-1598
- Snow Plow 32
- Baggage Car 34
- Wire Car 33
- and the Private car

Lake St. Station (257 passenger cars):
- 608-626
- 752-757
- 900-909
- 992-1048
- 1124-1142
- 1179-1200
- 1217-1228
- 1241-1255
- 1391-1420
- 1439-1465
- 1482-1496
- 1507-1516
- 1542-1556
- Snow Plows 30 and 36
- Sand Car 44

Snelling Station (187 passenger cars)
- 761-766
- 804
- 807-812
- 813 (double end)
- 814-816
- 848-858
- 860-867
- 896 (double end)
- 915-949
- 1050-1052
- 1164-1178
- 1256-1259
- 1282-1320
- 1341-1359
- 1421-1438
- 1497-1506
- 1557-1563
- Snow Plows 23 and 31
- Wire Car 4
- Wrecker 21

East 7th St. Station (re-named Duluth Ave. Station sometime between 1917 and 1919) (114 passenger cars):
- 758-760
- 767-788
- 797-803
- 805-806
- 837-847
- 873-876
- 880-895
- 950-975
- 1564-1571
- 1112-1118 (high speed suburban)
- 1162-1163 (high speed suburban)
- 1260-1265 (high speed suburban)

Owen St. Station (Stillwater) (5 passenger cars):
868-872
Snow Plow 38

North Side Station was opened in October, 1914, with cars transferred from other stations (146 cars):
from Lake St. Station:

832-836	1218-1228
900-910	1241-1254
994-1030	1391-1413
1037-1043	1601-1610
1179-1200	

from East Side Station:
1031-1036

Owen St. Station had the following cars assigned as of October 31, 1921: 870-874, 946, and 1264-1265.

Cars used on the "Inter-Campus" line during the years of its operation were as follows:

1914 to ?	1079-1084
about 1919 to ?	1189-1194
1932-1941	1146-1149 (1160 and 1265 were spares)
1941-1947	1345-1349
1947-1953	1266-1271 (1329-1330 were spares)
1953-1954	1301-1304

Inter Campus line right-of-way, St. Paul. Note the span wire target to the left of the trolley wheel. (Russell L. Olson)

Left: "Inter Campus Special" car 1345 arriving at the agricultural campus loop in 1945. (W. C. Whittaker; James Foster collection)

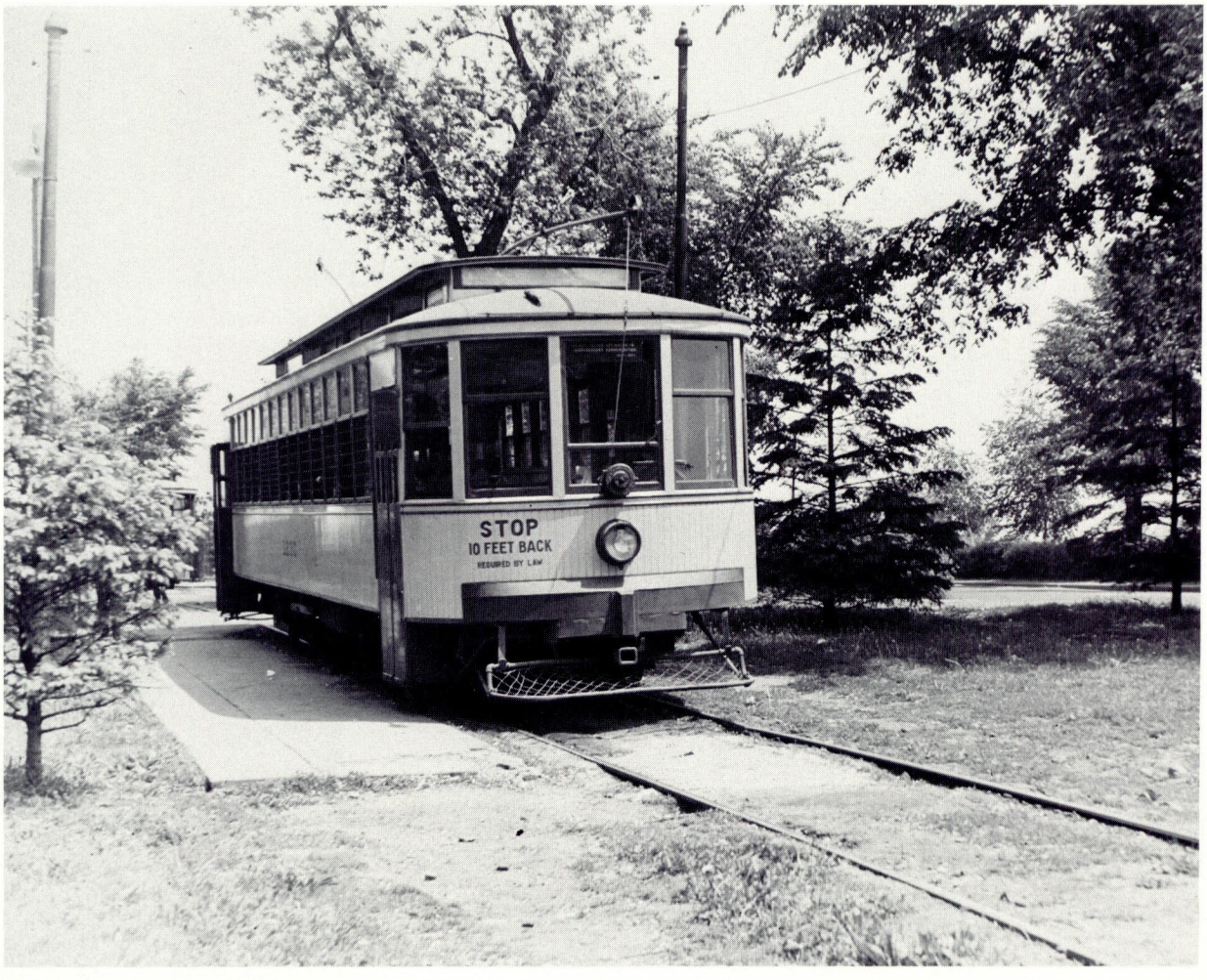
Right: Inter Campus line right-of-way as seen from the motorman's cab of a front exit "gate" car. (William J. Olsen)

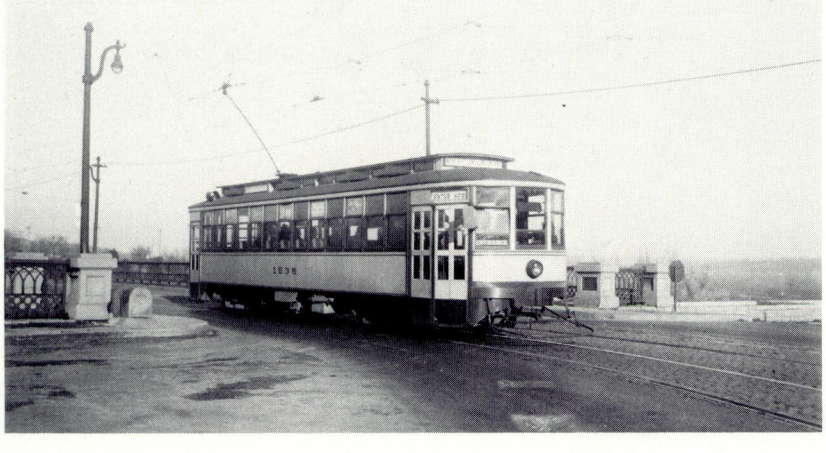
Each Station assigned its cars to the various lines according to a definite system. This was done so that each car got cleaned daily and inspected every other day for wheel and brake defects. The following system was used beginning in 1936.

	Nicollet Station	**North Side, Snelling Stations**	**Lake St., East Side Stations**
One Day	1100's 1500's 1600-1607 1800's	Odd numbered cars	Even numbered

Next Day	1200's 1400's 1600's 1700's	Even numbered cars	Odd numbered cars

Duluth Station was small and did not hold enough cars to permit odd or even numbered cars on alternate days, so a car would be assigned to full time operation one day, and to rush hour service only the next day.





Above: Double end car 1230 at the Fort Snelling wye on the north end of the "Fort Snelling Extension" line. Passengers changed cars at this location; note the concrete platform. (Norman F. Podas)

Left: "Maria-Ft. Snelling-47 Ave." car 1538 westbound leaving the W. 7th St. bridge and entering Fort Snelling, 1945. (W. C. Whittaker; James Foster collection)

In earlier years, it was the practice to operate a line completely out of one station. Shifting traffic patterns, changes in line combinations, and car capacity of the stations necessitated modifications to this practice. The following tabulation of the cars operated on each line in October, 1947, is illustrative of the solution to the problem and also provides a feeling for the overall extent of service.

NUMBER OF CARS OPERATED — OCTOBER 21, 1947

		A.M.	DAY	P.M.	NIGHT	OWL	Line length — Miles
EAST SIDE STATION							16.16/4.41
Como-Harriet-Hopkins		52	27	50	13	3	Hopkins
Oak-Harriet		24	12	24	8	1	9.96
Inter-Campus Special		6	3	2			3.61
Interurban extras		6		4			
NICOLLET STATION							
Nicollet-2nd St. N.E.— N.W. Terminal		54	20	48	15	1	9.38/8.66
Glenwood-4th Ave.		27	10	28	8	1	6.94
LAKE ST. STATION							
Minnehaha-Ft. Snelling		20	12	20	8	2	8.85
Ft. Snelling Extension		1	1	1	1		1.07
Interurban extras		2					
NORTH SIDE STATION							
Chicago-Penn-Fremont		73	27	75	20	3	10.54/10.71
Broadway		4	3	4	2		3.45
Interurban extras		6		3			
SNELLING STATION							
Interurban		57	29	67	13	2	10.36
Snelling Ave.		14	6	12	6		5.26
Rice-So. St. Paul extras		9					
Como locals		1					
DULUTH AVE. STATION							
Rice-So. St. Paul		16	8	18	7	2	9.78
Rondo-Stryker		7	4	7	3	1	5.19
Maria-Ft. Snell.-47 Av.		12	7	12	6	2	10.67
NICOLLET and EAST SIDE STATIONS							
Bryant-Johnson	Nic	30	14	34	10	2	
	ES	17	6	15	4		
	Total	47	20	49	14	2	10.70
Grand-Monroe	Nic	13	6	14	4		
	ES	13	3	12	3	1	
	Total	26	9	26	7	1	8.19
LAKE ST. and EAST SIDE STATIONS							
Bloomington-Col. Hts.	LS	17	7	18	6	1	
	ES	15	5	12	4	1	
	Total	32	12	30	10	2	11.05
Plymouth-E. 25 St.	LS	23	7	20	7	2	
	ES	2	1	7	1		
	Total	25	8	27	8	2	10.28

		A.M.	DAY	P.M.	NIGHT	OWL	Line Length — miles
LAKE ST. and NORTH SIDE STATIONS							
28 Ave. So.-Robbinsdale	LS	27	9	21	7		
	NS	13	3	8	1		
	Total	40	12	29	8		13.20
34 Av. S.-N. Bryant	LS	17	8	15	6	2	
	NS	9	2	5	2		
	Total	26	10	20	8	2	12.15
LAKE ST. and SNELLING STATIONS							
Selby-Lake	LS	39	24	42	15	3	
	Sn	17	1	20	5		
	Total	56	25	62	20	3	10.81
DULUTH AVE. and SNELLING STATIONS							
Grand-Mississippi	Dul	11	1	7	2	1	
	Sn	13	7	20	4	1	
	Total	24	8	27	6	2	9.13
Hamline-Cherokee	Dul	4	1	4	2		
	Sn	13	6	14	5	2	
	Total	17	7	18	7	2	8.22
St. Clair-Payne	Dul	9	4	15	3		
	Sn	11	5	15	4	2	
	Total	20	9	30	7	2	9.80
Dale-Phalen	Dul	6	3	11	2	1	
	Sn	6	4	7	3		
	Total	12	7	18	5	1	8.69
Randolph-Hazel Pk.-	Dul	23	9	25	7	2	11.20 R-HP
Mahtomedi	Sn	7	4	18	2		13.35 7 & Wab.-
	Total	30	13	43	9	2	Mahto.
Grand Totals							
East Side Station		125	57	122	33	6	
Nicollet Station		124	50	124	37	5	
Lake St. Station		136	68	137	50	10	
North Side Station		97	35	92	25	3	
Minneapolis Total		481	213	474	145	24	
Snelling Station		140	62	142	42	7	
Duluth Ave. Station		88	37	91	32	9	
St. Paul Total		228	111	232	74	16	
Twin City Total		709	324	706	219	40	

Operating Practices

The Private Car had right-of-way over all other cars except on curves. When it was following another car and desired to pass it, the motorman of the Private Car would give one long whistle blast; the motorman of the preceding car was then to take the first siding and permit the Private Car to pass. The conductor of the preceeding car was to indicate by waving his hand that he understood the signal and see that his motorman understood what was required. This rule also applied to Wreckers, Snow Plows, and Wire Cars which had right-of-way over all other types of equipment except on curves.

At curves the car on the outside track had right-of-way over the car on the inside track regardless of class.

Between cars of the same class: (a) main line cars had right-of-way over branch line cars (the straight line was considered the main line), (b) at street intersections the inbound car had right-of-way over the outbound car (in Minneapolis inbound was defined as toward Hennepin Ave. or Washington Ave.; in St. Paul it was toward Wabasha St. or 7th St.), (c) at right angle intersections the northbound or southbound car had right-of-way over the eastbound or westbound car.

Work Cars, Supply Cars, and Not In Service cars had no right-of-way.

Chartered cars running as local equipment had corresponding rights.

At all crossover switches the car that was about to use the crossover was always to give right-of-way to the car on the straight track.

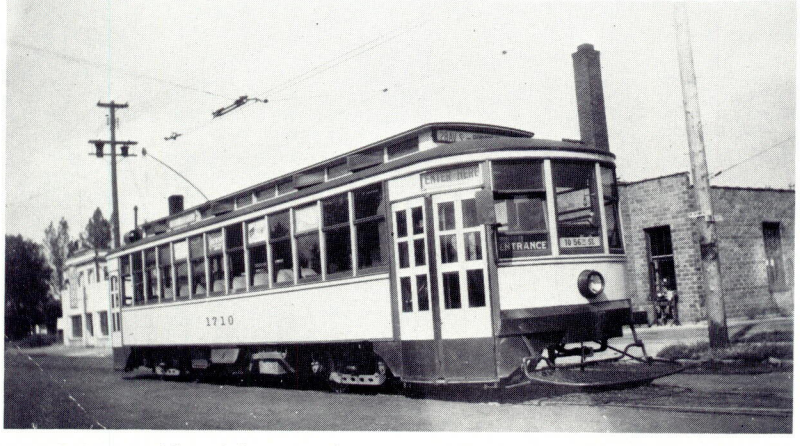
Small red circular targets were placed over circuit breakers on the trolley wire to indicate the position of the breakers. Current was not to be used while the trolley wheel was passing under the circuit breaker.

White light clusters were placed on the span wire pole at the entrance to all single track extensions of local lines. Switches for these were in a locked box on the pole, manually operated by the motorman. When the lights were on this signified the single track was blocked; when they were off the track was clear. These were of two types. The first type was a light cluster at the entrance to single track only; the motorman turned on the lights before entering the single track and turned them off when leaving the single track. Under this type only one car at a time could use the single track. The second type consisted of four light clusters, two at each end of the single track. Under this system two cars could share the single track. All extra or special cars were to operate on local single track only as another section of a regular car; the motorman of the regular car operating all of the switches. Later on, these light clusters were replaced by red and green signal lights, with trolley wheel actuated contactors mounted on the overhead wire. (These were also used to protect the single track on 9th Ave. So., Hopkins.)

Large rectangular targets were hung on the span wires at certain locations.

When any of the above were suspended at the approach to a bridge or viaduct the targets were to be considered with reference to the bridge or viaduct and not to nearby street crossings.

Color	Action Required
Plain white	No attention to be paid to target. (The reverse side of all targets was painted white.)
Plain red	Reduce speed to 4 m.p.h. before and while crossing place indicated.
Red with white "S"	Make safety stop before crossing place indicated. Do not open gates.
Red with white "P"	Make safety stop and open gates to permit passengers to board or alight before crossing place indicated.
Yellow	Caution — cars do not clear.



Car 1710 in Robbinsdale at 42nd Ave. N. and Broadway. Note the overhead wire contactor for operating the signals protecting the single track. (Ronald Kupinsky; Joe Hutchinson collection)

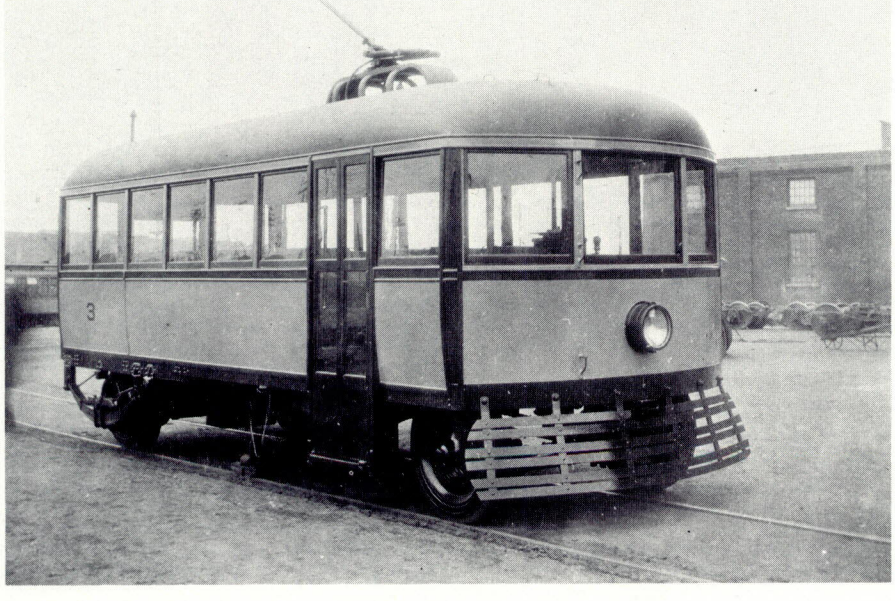
Experimental Trolley Bus Operations

An experimental trolley bus service was established May 15, 1922, on Bloomington Ave. between 38th St. and 48th St. Thirty minute service, with fifteen minute rush hour service, was provided from 6:00 A.M. until 11:30 P.M. Equipment consisted of two trolley buses. (#1 happened to be the company's first gasoline motor-bus). #2 was built by J.G. Brill Co. during 1922 with the chassis fabricated by Lansden Electric Co. of Danbury, Connecticut. It was equipped with two G.E. 258 motors, and Westinghouse control. 23'10" long, it seated 30 persons, weighed 11,500 lbs. and cost $7,675. #3 was built by TCRT in December, 1922. It was equipped with two G.E. 258 motors and one K-63 controller. Seating 30 persons, it weighed 10,960 lbs. and cost $10,196.

For traveling to and from Lake Street Station the current collection problem was solved in the following manner. The current collector was a single trolley pole divided into two segments at the top, each segment fitted with a trolley harp and wheel. On the underside of the chassis was mounted a sliding flanged contact shoe that could be raised or lowered at will to make contact with one of the steel rails of the streetcar track. Thus when operating over the street as a trolley bus, both trolley wheels were in contact with the trolley wires (positive and negative) and the rail contact shoe was in the raised position. When operating over the streetcar track, only the positive trolley wheel was in contact with the trolley wire, while the rail contact shoe was in the lowered position, forming the negative return by its contact with the steel rail. A certain amount of play was provided in the contact shoe assembly to allow the trolley bus to make turns.

In the 1922 TCRT Annual Report, the officers stated that the company did not accept or reject trolley buses, but that its investigation of them would be continued. Apparently the results were not satisfactory. The trolley buses were removed from service on May 22, 1923, when the streetcar line on Bloomington Ave. was extended from 38th St. to 48th St. The trolley buses were placed in storage where they remained, unused, until 1934 when they were sold for scrap to the Wilensky Auto Parts Co., Minneapolis.

Left: Interior of trolley bus 3, looking toward the rear. (TCRT; William J. Olsen collection)



Below: TCRT built trolley bus 3 upon completion in 1922 at the Snelling Shops. Note the single trolley pole, solid rubber tires, and the sliding rail contact shoe mechanism. (TCRT; Minnesota Historical Society collection)

Fares

Any ride entirely within either the City of Minneapolis or the City of St. Paul was considered as one zone. A rate of $.05 per zone was in effect from the very first horsecar operations until August 1, 1921, when it was increased to $.06 per zone. Tokens were first used beginning August 1, 1925, when the fare was increased to $.08 cash or 6 tokens for $.40. Further increases were put into effect as follows:

	Cash	Tokens
January 26, 1929	$.10	6 for $.45
November 7, 1941	$.10	6 for $.50
April 11, 1943	$.10	6 for $.45
September 14, 1947	$.10	5 for $.45
July 13, 1948	$.11	5 for $.55
October 22, 1949	$.12	3 for $.35
July 18, 1950	$.15	4 for $.55
May 8, 1952	$.15	4 for $.60
January 1, 1953	$.20	6 for $1.00
April 30, 1953	$.20	5 for $.90

The various interurban lines connecting Minneapolis and St. Paul were operated as two zone lines, the fare collection being pay-as-you-enter outbound and pay-as-you-leave inbound, in either city.

Two Minneapolis local suburban lines of unusual length charged an extra fare outside the Minneapolis city limits. The "Robbinsdale" line charged a 3 cents extra fare for a through ride from Minneapolis to Robbinsdale, or 5 cents straight fare if the ride were entirely outside Minneapolis. The suburban fare on the "St. Louis Park" line was always an additional 5 cents.

Fares on the "Lake Minnetonka" and "Stillwater" lines were charged on a zone basis. A rate of 5 cents per zone was in effect from the start of operations until August 1, 1921, when it was increased to 6 cents per zone. This 6 cents per zone fare was never subsequently increased. The fares charged to various points on each line when the rates were 5 cents per zone were:

Lake Minnetonka Division (1909-1910)

Minneapolis to the city limits	$.05
Minneapolis to Brookside or Blake	$.10
Minneapolis to Hopkins	$.15
Minneapolis to Glen Lake, Clearspring, or Tonkawood	$.20
Minneapolis to Excelsior and Tonka Bay	$.25
Minneapolis to Deephaven	$.25
Excelsior to Tonka Bay	$.10
Commutation tickets:	
Hopkins — 25 ride	$3.00
Minnetonka — 25 ride	$4.50

Stillwater Division (1910)

St. Paul to the city limits	$.05
St. Paul to North St. Paul (Silver Lake)	$.10
St. Paul to Wildwood	$.15
St. Paul to Mahtomedi	$.15
St. Paul to Birchwood	$.15
St. Paul to White Bear	$.20
St. Paul to Leis	$.20
St. Paul to Stillwater city limits	$.25
St. Paul to Stillwater Union Depot	$.30
St. Paul to South Stillwater	$.35
Wildwood to White Bear	$.10
Stillwater to South Stillwater	$.10
Stillwater to Leis	$.10
Stillwater to Wildwood	$.15
Stillwater to Mahtomedi	$.15
Stillwater to White Bear	$.20
Stillwater to North St. Paul (Silver Lake)	$.20
Stillwater to St. Paul city limits	$.25
Stillwater to St. Paul	$.30

Commutation tickets were not listed on the 1910 timetable. A 1930 timetable, when the fare rate was 6 cents per zone, listed a 24 ride commutation ticket book, St. Paul to Stillwater, at a cost of $8.66. These were offered for sale at: Company offices at College and Wabasha, St. Paul; Owen Street Station, Stillwater; and King Bros. Drug Store, Stillwater.

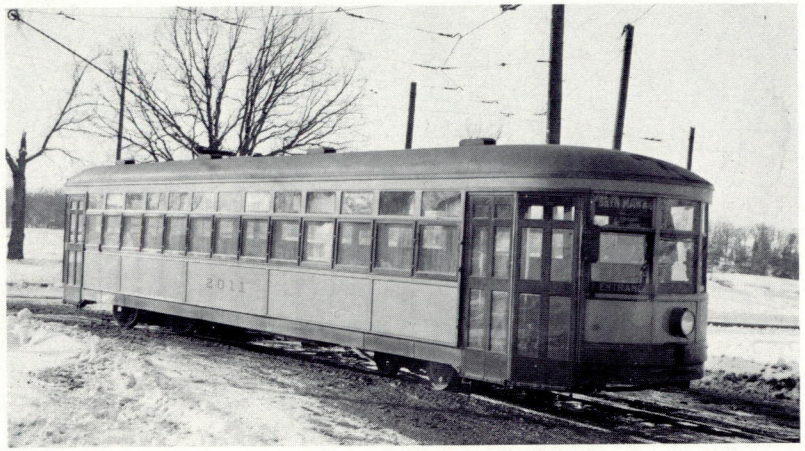
The Inter Campus line had special student commutation tickets, and also accepted the regular cash fare or token, but did not accept or issue transfers. An unusual feature was the use of a special University of Minnesota form; if a student did not have the proper fare, the conductor handed him this form to fill out which authorized the University to deduct the fare from the student's general deposit and reimburse the company.

The Fort Snelling spur line from the wye to the reservation barracks was always operated at no fare as provided in the agreement with the U.S. government. The Burns Ave. extension of the Maria Ave. line in St. Paul was operated as a shuttle for about ten years at no fare; as the line was ordered by the St. Paul city council the patronage produced total revenue of $3 per day against the wages of the two-man crew of $10 per day ($5 per man per day). Instead of losing $7 per day by collecting fares with a two-man crew, a one-man crew and no fare reduced the loss to $5 per day.

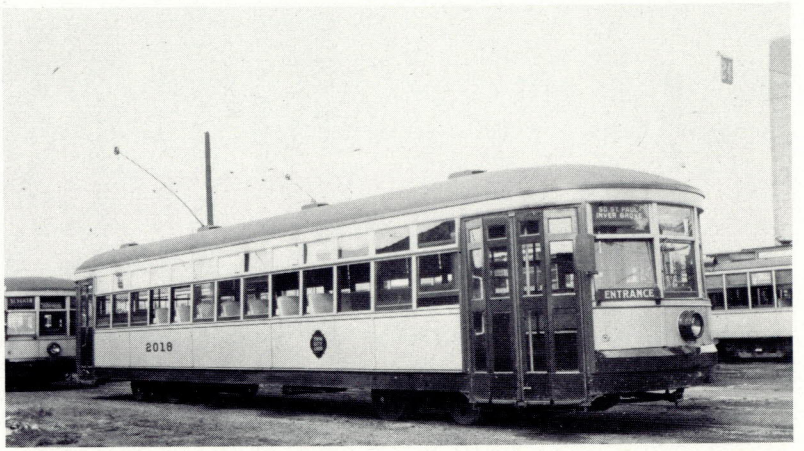
Free transfers were given between all car and bus lines in the Twin Cities and exchanged with the Mpls. Anoka & Cuyuna Range R.R. In later years two special bus lines were operated which were not involved in exchanging transfers. These were the Nicollet-Hennepin bus line which charged a straight 10 cents cash fare, and the University Ave. express bus between Minneapolis and St. Paul which used only special 2 for 25 cents tokens.

Fare Collection

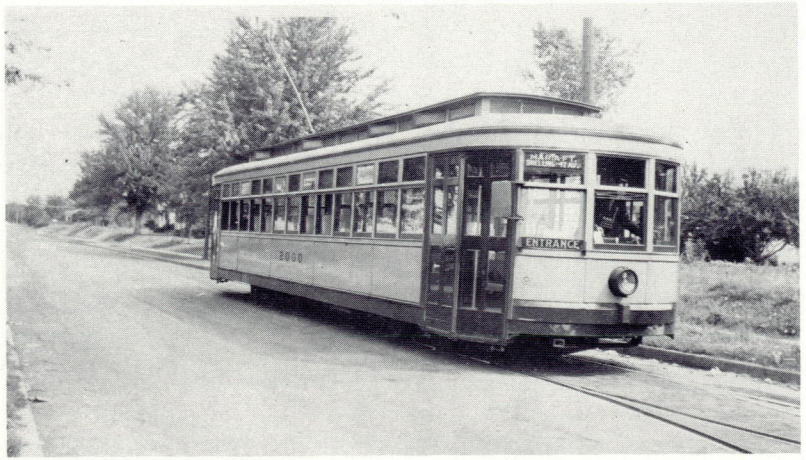
Overhead fare registers mounted on the front bulkhead and operated by the conductor from the rear of the car were used originally. The conductor would receive the cash or transfers personally, and then ring up the transaction on the register.



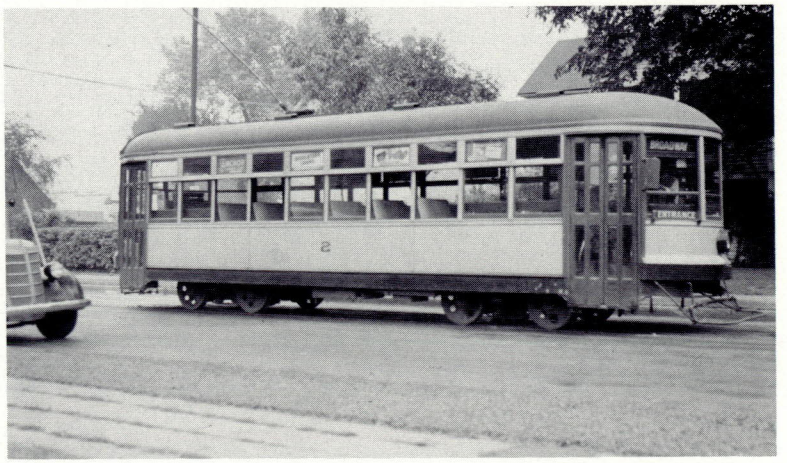
Car 2011 on the "Bryn Mawr" line, Minneapolis, leaving the wye at Laurel and Upton Avenues. (Robert Hanft; Joe Hutchinson collection)



Car 2018 at the Snelling Station, St. Paul, signed for the "South St. Paul-Inver Grove" line, after being repainted with the TCL emblem. (Joe Hutchinson collection)



Car 2000, as it appeared after its final rebuilding, on the wye at 47th Ave. So. and 54th St., Minneapolis, on the "Maria-Ft. Snelling-47 Av." line. (Joe Hutchinson collection)



"Broadway" car 2 at the wye at Broadway and Jackson St. N.E., Minneapolis, on Broadway about to leave on a westbound trip. (William J. Olsen)

The pay-as-you-enter system was introduced on the "4th Ave. S.-6th Ave. N." line in Minneapolis on April 28, 1918. This was accomplished as follows: a small seat for the conductor was installed on the gate side next to the rear bulkhead in place of a portion of the longitudinal passenger seat; the new Johnson fare box was placed on an iron stanchion which was fastened to the floor and roof; the overhead register was moved from the front bulkhead to the rear stanchion; the lever operating the cash side of the register was connected to a foot pedal at the base of the stanchion; the lever operating the transfer-ticket side of the register was connected to a cord which hung down next to the bulkhead; the cord operating the overhead register bell was moved from the pole side to the gate side of the car and dropped down to a point near the farebox. The conductor watched the coins as they were dropped into the box and when he had determined the fare paid was correct, he pressed the foot pedal for the cash side of the register; when he received transfers he pulled the transfer cord. Then he operated the Johnson fare box in the normal manner. As cars were made ready, the system was introduced on the various other lines.

The conversion to one-man operation resulted in the removal of the overhead fare registers. The Johnson fare boxes were then used exclusively. The introduction of PCC cars in 1946 resulted in the first use of electric fare boxes, but their use was confined solely to the PCC cars.

Lightweight Cars

A complete history of the use of the lightweight cars in the Twin Cities would be too lengthy in relation to interest in the subject. A general summary of their most extensive uses will be related instead.

St. Paul operated the largest number of the 2000-2030 series cars. They saw service on the following lines:

"Snelling Ave.", "Rondo-Maria" and "Rondo-Stryker", "Maria-Ft. Snelling-47 Av.", "St. Clair-Payne" and "Grand-Mississippi".

In Minneapolis, such cars were used on the "Grand-Monroe", "Bryn Mawr", and "Broadway" lines; and at the end of streetcar operations (1950-1952) on the "34th Ave. So." line.

The smaller cars, 1-4, were built for the Stillwater local lines, and saw varied service after these lines were abandoned. A summary of their usage is as follows:

Stillwater local lines: 1-3 = 1925-1932; 4 = 1925-1930; Cedar Ave. shuttle (Minneapolis): 4 = 1930-1933; Western Ave. shuttle (St. Paul): 3 double end = 1932-1941; Franklin-11th St. (Mpls.): 1, 2 and 4 = 1933-1935; Bryn Mawr (Mpls.): 1, 2 and 4 = 1935-1939; Ft. Snelling spur line: 4 double end = 1939-1952 (spare car); Out of service: 1-2 = 1939-1941; No regular assignment: 3 double end = 1941-1949, and Broadway (Mpls.): 1-2 = 1941-1949.

Conversion to One-Man Car Operation

The first lines in either city converted to one-man car operation, were the following Minneapolis lines on which lightweight cars (newly re-arranged for such operation) began operating: May 18, 1930: "Cedar Ave." line; and August 10, 1930: "Franklin-11th", "Broadway", and "Bryn Mawr" lines.

Subsequent conversions were dependent on the rebuilding of standard cars for one-man operation, although the remaining lightweight cars were re-arranged for one-man operation also. The following chronological listing shows how and when this conversion was accomplished.

1931

Minneapolis — November 3: evenings and owl service on "Glenwood-4th Ave."; December 1: evenings and owl service on "Bloomington-Columbia Heights" and "Kenwood-E. 25th St."; evenings only on "St. Louis Park" (No owl service was ever provided on this line); owl service only on "Oak-Harriet".

1932

Minneapolis — All one-man except rush hours: February 15: "St. Louis Park" and "Kenwood-E. 25th St."; March 16: "Grand-Monroe"; April 16: "28th Ave. S.-N. Emerson"; May 16: "Bloomington-Columbia Heights" and "Glenwood-4th Ave.".

Owl service only: June 1: "Chicago-Penn-Fremont", "Nicollet-2nd St. N.E." and "Bryant-Johnson".

Owl service and Sunday service only: June 26: "34th Ave. S.-N. Bryant".

Sunday service only: May 1: "Bloomington-Columbia Heights" and "Glenwood-4th Ave." and June 26: "Chicago-Penn-Fremont" and "Bryant-Johnson".

All one-man service: November 21: "St. Louis Park".

St. Paul — All one-man except rush hours: June 1: "Rice-Stryker" and "South St. Paul-Inver Grove"; June 6: "Dale-Phalen"; June 16: "Hamline-So. Robert"; July 13: "Rondo-Maria"; July 18: "St. Clair-Payne", and November 3: "Grand Ave.".

Sunday service and owl service only: July 16: "Mississippi-Cherokee" and "Grand Ave.".

Owl service only: July 17: "7th-M'haha-Plymouth".

All one-man service: September 9: "Western Ave."; and September 18: "Jackson-Stryker".

The "Merriam Park" line began one-man operation at mid-day only effective September 8th between 8:37 A.M. and 4:30 P.M. using a double end shuttle car from Marshall and Prior; otherwise operated to downtown St. Paul with two-man operated cars.

1933

Minneapolis: Evenings and Sunday service only: May 1: "Nicollet-2nd St. N.E.-N.W. Terminal".

All one-man except rush hours: May 19: "Bryant-Johnson".

All one-man service: June 1: "28th Ave. S.-N. Emerson"; June 19: "Kenwood-E. 25th St." and "34th Ave. S.-N. Bryant"; and July 3: "Bloomington-Columbia Heights".

St. Paul: All one-man service: April 3: "Rondo-Maria"; April 13: "Dale-Phalen"; June 1: "Grand Ave."; and July 13: "St. Clair-Payne".

1934

Minneapolis: Evening service only: May 14: "Chicago-Penn-Fremont".

All one-man service: July 2: "Bryant-Johnson"; July 9: "Grand-Monroe"; and April 23: "Glenwood-4th Ave.".

Owl service only: November 10: "Interurban" and "Como-Harriet".

St. Paul: All one-man service: June 11: "Hamline-So. Robert"; and June 19: "Rice-South St. Paul".

All one-man service except rush hours: September 8: "Randolph-Hazel Park-Mahtomedi".

1936

St. Paul: All one-man service: July 5: "Minnehaha-7th-Hope".

1946

Minneapolis: Sunday service only: "Oak-Harriet" line.

1948

Minneapolis: January 2: the "Chicago-Penn-Fremont" line was converted to all one-man service except certain rush hour runs.

1949

Minneapolis: All one-man service: July 1: "Nicollet-2nd St. N.E."; and October 25: "Oak-Harriet".

1950

Minneapolis-St. Paul: Sunday and evening service only: June 3: "Selby-Lake".

1951

Minneapolis: All one-man service: August 6: "Chicago-Penn-Frmeont".

1952

Minneapolis-St. Paul: Extensive one-man service: April 4: "Interurban", "Como-Harriet, and "Selby-Lake".

1953

The "Como-Harriet" line became all one-man operated on July 10th except for ten two-man runs; the "Interurban" likewise on October 31st except for six two-man runs; these two-man runs were scheduled to accommodate older conductors too young to retire but too old to become bus drivers.

The "Inter-Campus" line was always two-man operated.

Owl Service

Hourly owl service was provided on most lines. An interesting aspect of this was the New Year's Day owl service provided in the early 1900's. For example, on January 1, 1910, the 1:00 A.M. and 2:00 A.M. runs in Minneapolis were double headed, except the "Kenwood-8th St. S.E." runs which had one car, and the "8th Ave. S. & Central" runs which were triple headed; likewise in St. Paul the 1:00 A.M., 2:00 A.M. and 3:00 A.M. runs were all double headed, except the westbound 2:00 A.M. "Grand Ave." run which was triple headed; on the "Snelling-Minnehaha" runs the first section ended at Fort Snelling while the second section ran through to Minneapolis. This practice was followed for several years. In later years principal meeting points for owl cars were at 5th St. and Hennepin Ave., Minneapolis, and 7th St. and Wabasha St., St. Paul. Running time on the western ends of the "Glenwood-4th Ave." and "Plymouth-E. 25th St." lines was short enough to permit one car to cover both lines; leaving 5th and Hennepin the car first went out Plymouth Ave., back downtown to 1st Ave. N., 7th St. N., out Glenwood Ave., and back to 5th and Hennepin for the next owl car line-up.

PCC Cars

The first PCC cars received were placed in service on the "Interurban line; full service using PCC cars began December 11, 1946.

The second order of PCC cars was placed on the following lines: Minneapolis: August 6, 1947: "Bryant-Johnson" (all base service), and "Glenwood-4th Ave.".

St. Paul, October, 1947: "Grand-Mississippi" and St. Clair-Payne".

The third order of PCC cars was utilized as follows: Minneapolis, July 6, 1949: "Grand-Monroe" line (partial service), and "Bloomington-Columbia Heights" line (partial service from East Side Station).

July, 1949: "Nicollet-2nd St. N.E." line (all one-man).

St. Paul, June, 1949: "Hamline-Cherokee" line.

These lines were operated from the following car stations:

Snelling Station: "Interurban", "Grand-Mississippi", "St. Clair-Payne-Phalen", and "Hamline-Cherokee".

Nicollet Station: "Glenwood-4th Ave. So." and "Nicollet-2nd St. N.E.".

Nicollet and East Side Stations: "Bryant-Johnson" and "Grand-Monroe".

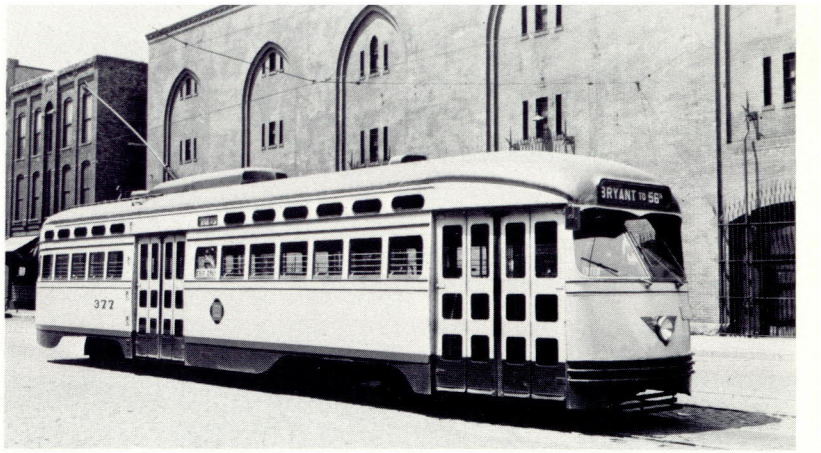
East Side Station: "Bloomington-Col. Hts." (partial service).

PCC service was begun October 2, 1952, on the "Como-Harriet" line (partial service) and October 12, 1952, on the "Oak-Harriet" line.

With the replacement of streetcars by buses, the PCC cars were all sold to other transportation systems during 1953. They were gradually removed from regular service as they were needed for rehabilitation and preparation for shipment elsewhere. After November 6, 1953, the last PCC cars remaining were used exclusively on the "Glenwood-4th Ave. S." line.

The Stillwater Division

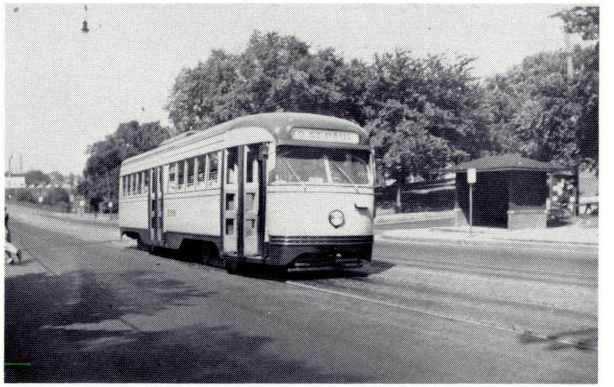
The following lines were operated by the Stillwater Division beginning in 1899: Stillwater Interurban", "Mahtomedi", "Owen St.", "Wilkin St.", and "South 3rd St.".



Top: "Interurban" line PCC car 319 eastbound on 5th St. at Nicollet Ave., Minneapolis, in May, 1948. (W. C. Whittaker; James Foster collection)

Right: PCC car 299 eastbound on Washington Ave. S.E. at 17th Ave., Minneapolis, in 1945. (William J. Olsen)

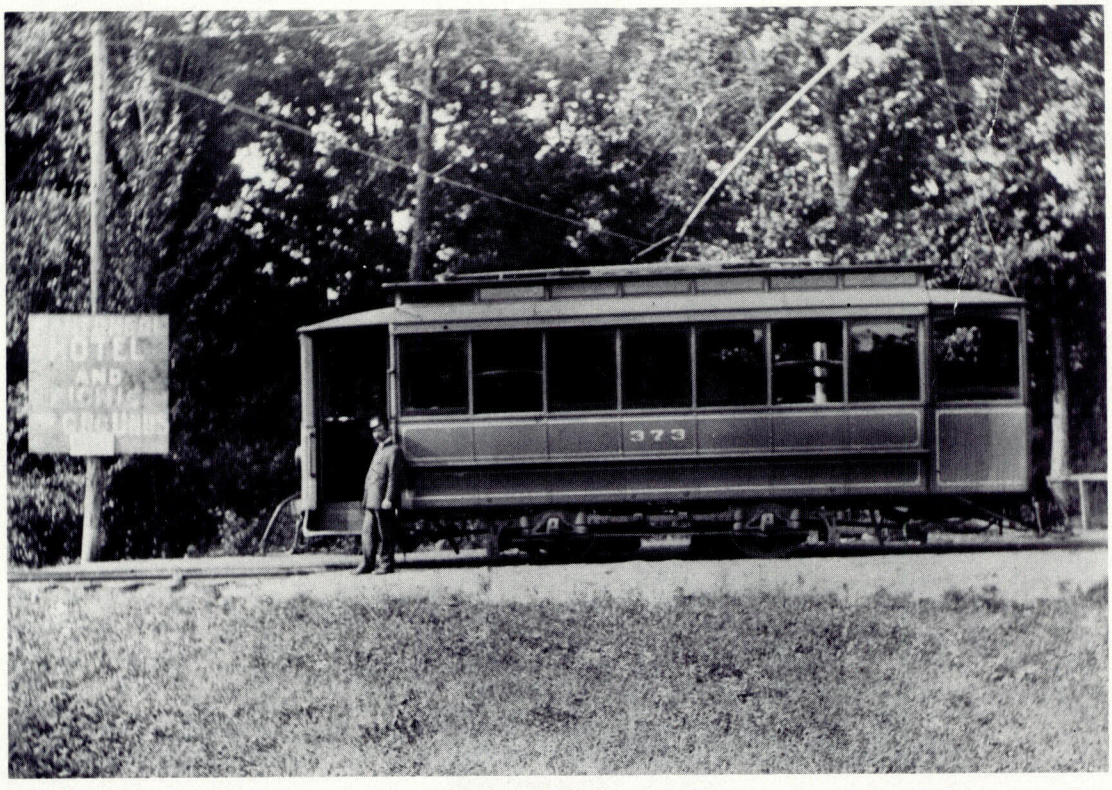
Bottom: PCC car on the "St. Clair-Payne" line entering the Phalen Park right-of-way, St. Paul. (James Foster collection)



Top: PCC car 377 on 1st Ave. N., Minneapolis, in May, 1948, with the Butler Building in the background. (W. C. Whittaker; James Foster collection)

Bottom: PCC car 433 westbound on the right-of-way through Como Park, St. Paul, operating over the "Como-Hopkins" line. (James Foster collection)

The "Stillwater Interurban" provided daily 30 minute service, 6 A.M. to midnight, from the Main St. and W. 7th St. loop, St. Paul, to the Stillwater Union Depot. This service required five cars. Little is known about the service to Mahtomedi in the early years. A hotel and picnic grounds, not owned by TCRT, was located there. A single truck, double end, closed passenger motor car operated shuttle service between Wildwood and Mahtomedi, connecting with main line trains at Wildwood, during periods of light traffic, making seven trips per day (3 in the morning, one at noon, and 3 in the afternoon).



The Wildwood-Mahtomedi shuttle car at Mahtomedi in the early 1900's. Note the sign giving directions to the Mahtomedi Hotel and Picnic Grounds. (Joe Hutchinson collection)

By 1900 the route in downtown St. Paul had been changed to: E. 7th St. — Wabasha St. — 5th St. — Broadway — E. 7th St. In 1901 this was modified to: E. 7th St. — Cedar St. — 8th St. — Wabasha St. — 5th St. — Broadway — E. 7th St.

Through service from Minneapolis to Stillwater was begun July 13, 1901, but no information has been located on details of the operation or for how many years it was provided.

When the White Bear branch line was opened in 1904, through trains were operated from St. Paul to White Bear and Mahtomedi only at certain times, with one train running between White Bear and Mahtomedi, connecting at Wildwood with main line trains, at other times. Effective September 11, 1905, the "White Bear & Mahtomedi" line was formed, consolidating the previously separate operations. During the winter of 1905-1906 service to Mahtomedi was suspended.

Schedules of the 1908 to 1910 period indicate that 60 minute service was provided to White Bear and Mahtomedi, but from late October through early April Mahtomedi had only the seven daily round trips (leaving 6:15, 7:00, 8:00 A.M., 12:00 noon, and 4:00, 4:55, 5:55 P.M.

Beginning June 10, 1912, through service from St. Paul to White Bear and Mahtomedi was operated during the morning and evening rush hours. On July 17, 1912, the siding at the Stillwater Union Depot was completed and operation on the Union Depot loop was changed from clockwise to counterclockwise.

An employees' timetable for weekday service, effective May 15, 1913, is the earliest that has been located and the following paragraphs depict the operations based upon the timetable information. Typical main line runs were:

Sidings	Miles	Train #1 Eastbound	Train #3 Westbound
Cedar St. Loop	0.00	8.28 A.M.	9:23 A.M.
Duluth Ave.	2.54	8:47	9:07 end of double track
Bock St.	3.00	8:49	9:05
Maryland	4.95	8:54	9:00
Colby	6.28	8:57	8:57 regular meeting point
Chair Factory	7.29	8:59	8:55
Pullman	9.09	9:07	8:47
Wildwood Park	11.58	9:12	8:42 regular meeting point
Grant	13.54	9:17	8:37
Owen St. Station	18.65	9:27	8:27 regular meeting point
Stillwater Union Depot	20.04	9:35	8:20 A.M.

The White Bear-Mahtomedi run was 6.28 miles requiring 22 minutes running time.

The schedule speed overall averaged 18 m.p.h. The averages for specific portions were: Cedar St. loop to Duluth Ave. 8 m.p.h., Duluth Ave. to Maryland siding 21 m.p.h., Maryland to Wildwood Park 22 m.p.h. Wildwood Park to Owen St. Station 28 m.p.h., Owen St. to Stillwater Union Depot 10 m.p.h., and White Bear to Mahtomedi 17 m.p.h.

A westbound "St. Paul & Stillwater" car passing the Carnegie Library in Stillwater, on 4th St. north of Myrtle St., about 1903. (Sweet Studios; Minnesota Historical Society collection)

Train stops east of 7th St. Station on the main line were:
Duluth Ave.
Atlantic St.
Phalen Ave.
Bock St.
Germaine St.
Flandreau St.
White Bear Ave.
Harvester Ave.
Ames Ave.-Hazel Park
Maryland St.
Autumn Ave.
Larpenteur Ave. (end 1st fare zone)
Davis Crossing
Pennsylvania Ave.
Margaret St.
Charles St.
Soo Line Crossing
Silver Lake (end 2nd fare zone)
Long Lake
Wildwood (end 3rd fare zone)
Curtin
Grant
Leis (end 4th fare zone)
Elliott
Masterman
Parrant's (Stillwater city limits)
(end 5th fare zone)
Owen St. Station
Everett St.
5th St.
4th St.
Linden St.
Myrtle St.
Chestnut & 3rd Streets
2nd St.
Main St.
Myrtle St.
Water St.-Union Station

Train stops on the branch lines were:
Wildwood
Lakeview
East Shore Park
Oakleigh
Fairmont
Mahtomedi

Wildwood
Lakewood
Cedar Ave.
Birchwood (end 1st fare zone)
Bellaire Ave.
Cottage Park
White Bear city limits
Lake Shore
Lake Ave.
Shady Lane
Clark Ave.
Banning Ave.
3rd St., 4th St., 5th St., 6th St.

Suburban operation began at E. 7th St. and Duluth Ave., the end of double track. Stillwater trains made no stops between downtown St. Paul and Duluth Ave. (effective June 30, 1913) except to pick up passengers for points east of Duluth Ave.

Service to Stillwater was operated on 30 minute headway. Through trains ran from St. Paul to White Bear and Mahtomedi during the morning and evening rush hours providing 30 minute service to both communities. These trains had no rights on the main line but ran as sections of Stillwater trains between Duluth Ave. and Wildwood. Thus some runs operated with three sections, one to Stillwater, one to White Bear, and one to Mahtomedi. During other hours a shuttle train operated between White Bear and Mahtomedi, connecting with Stillwater trains at Wildwood, providing 60 minute service to the two communities. Additional service was provided in rush hours between St. Paul and Maryland siding, and between St. Paul and Wildwood.

Train movements were controlled by a dispatcher located at Owen St. Station. Employees' timetables were supplemented by telephone dispatching. Telephones were housed in wooden booths located at sidings and other important points. Train order semaphore signals were located adjacent to telephone booths at certain locations; they were remotely controlled from the dispatcher's office. Telephone stations were located at (s) = train order semaphore): Duluth Ave., Bock St. (s), Maryland (s), Colby (s), Chair Factory (s), Soo Line Crossing, Pullman (s), Wildwood (s), Grant (s), 5th and Laurel, 3rd and Chestnut, 3rd and Churchill, White Bear wye, and Mahtomedi wye. Standard form 31 train order blanks were used. The dispatcher was notified by each train crew when entering or leaving double track, at each meeting point, and before leaving the end of any line. Extra trains and work trains operated only by train order authorization.

In Stillwater the interurban trains provided local service on the city portion of the route: Owen St. — Laurel St. — 4th St. — Myrtle St. — 3rd St. — Chestnut St. — Union Depot loop, and return via the same route, thus providing 30 minute headway. At the Union Depot, interurban trains took the layover on the siding so that local cars had unrestricted use of the loop track. The two local lines were operated as follows: "Owen St." line: from the wye at Owen St. Station siding, on Owen St., Olive St., Greeley St., Churchill St., 3rd St., Chestnut St., Union Depot loop, and return via the same route.

Sidings	Miles	E.B.	W.B.
Owen Street Station	0.00	8:30 A.M.	8:57
Churchill and 3rd St. (wye)	1.50	8:38	8:49
Stillwater U.D.	2.23	8:43	8:44 A.M.

One car was used to provide 30 minute headway.

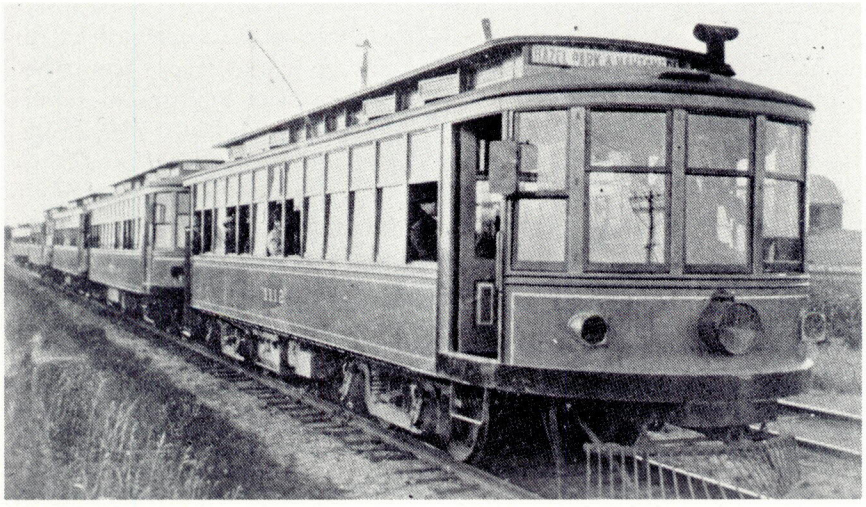
"South Stillwater-Wilkin St." line: from William and Wilkin Streets, on Wilkin St. — 5th St. — Laurel St. — 4th St. — Myrtle St. — 3rd St. — Chestnut St. — Union Depot loop — Chestnut St. — 3rd St. — thence over various streets to 3rd St. and Central Ave. in South Stillwater (later re-named Bayport).

Sidings	Miles	S.B.	N.B.
Wilkin St.	0.00	8:24 A.M.	9:22
Laurel and 5th St.	0.59	8:27	9:19
(0.38 miles from Owen St. Station)			
Churchill and 3rd St. — wye	2.33	8:38	—
Churchill and 3rd St. — sdg.	2.38	8:39	9:09
South Stillwater	5.39	8:53	8:55 A.M.

Two cars were used to provide 30 minute headway.

Meeting points in Stillwater were as follows: westbound "St. Paul-Stillwater" trains met southbound "South Stillwater" cars at 5th and Laurel, southbound "South Stillwater" cars met the eastbound "Owen St." car at 3rd and Churchill wye, and the northbound "Wilkin St." car at 3rd and Churchill siding; the northbound "Wilkin St." car met the southbound South Stillwater" car at 3rd and Churchill siding, and the westbound "Owen St." car on the Union Depot loop. The last westbound "St. Paul-Stillwater" train of the evening operated over the "Owen St." line instead of the normal route, providing the last local service of the evening on that line.

Train numbers 1 through 7 were assigned to the "St. Paul-Stillwater" runs, 8 through 11 to "White Bear-Mahtomedi" runs (8 being the shuttle run), 12 and 13 to "Wilkin St.-South Stillwater" runs, and 14 to the "Owen St." run.



A four section eastbound train, with car 1112 in the lead, meeting a westbound train at an unidentified siding on the Stillwater Division. (Byron D. Olsen collection)

The employees' timetable that went into effect May 17, 1914, indicated that some changes had been made.

Sidings	Miles
Seven Corners Terminal	0.00
Duluth Ave.	3.01
Kerwin St.	4.62
Maryland	5.43
Colby	6.77
Soo Line Crossing	8.70
Long Lake	10.90
Wildwood Park	12.06
Grant	14.02
Parents	18.11
Owen St. Station	19.13
Main St.	20.38
Stillwater U.D.	20.44

The overall schedule speed average was still 18 m.p.h. but changes had been made on certain portions: Duluth Ave. to Maryland decreased to 18 m.p.h., Wildwood Park to Owen St. Station increased to 30 m.p.h., and Owen St. to Stillwater U.D. increased to 11 m.p.h. The St. Paul to Mahtomedi run was 13.87 miles, requiring 56 minutes northbound and 54 minutes southbound, for an average schedule speed of 15 m.p.h. The St. Paul-White Bear run was 16.57 miles, requiring 63 minutes northbound and 61 minutes southbound, for an average schedule speed of 16 m.p.h.

Sidings with telephone stations and train order semaphores were: Kerwin St., Maryland, Colby, Soo Line Crossing, Long Lake, Wildwood, Grant, Parents, and Lake Shore. Additional telephone stations had been installed at the South Stillwater wye and the State Prison.

The siding at Lake Shore on the White Bear branch line was necessitated by the schedule changes for meets between the through St. Paul-White Bear trains.

For the year 1914, 1,021,580 car miles were operated with 5,145,910 passengers carried.

The company designed and built a standard open type waiting station, steel frame with corrugated metal walls, 8' x 10' in size. Such structures were located at the following points.

Stillwater line:
- Kimball St.
- Long Lake
- Curtin
- Grant
- Leis
- Elliott
- Parrant's Crossing
- Masterman

Mahtomedi branch line:
- Willernie
- Forest Heights
- Lakeview
- East Shore Park
- Oakleigh
- Fairmount
- Mahtomedi

White Bear branch line:
- Lakewood
- Glenview
- Birchwood
- Chester
- Bellaire
- Cottage Park
- Oak Grove

Train #1 Eastbound	Train #3 Westbound
8:27 A.M.	9:26
8:49	9:04 end of double track
8:54	8:59
8:57	8:57 regular meeting point
9:00	8:54
9:07	8:47
9:12	8:42 regular meeting point
9:15	8:39 regular meeting point
9:27	8:34
9:37	8:27 regular meeting point
9:29	8:24
9:35	8:17
9:36	8:16 A.M.

A tool house, 8'6" x 14'6" was located at the Soo Line R.R. crossing in North St. Paul. At Wildwood the dispatcher's office was 8' x 10', and at the upper wye a trainmens' office was located measuring 6'4" x 6'4".

To handle the heavy Sunday and holiday traffic between St. Paul and Wildwood Park, extra runs were operated between most of the regular runs so as to provide 15 minute headway between those two points. This heavy traffic often required 5 or 6 sections of many regular trains. Trains were composed of one or more sections of single cars. To indicate extra trains and following sections of trains, round metal markers ("flags") (green on one side and white on the other) were inserted in the brackets on each side of the front dash of the car; at night oil or kerosene marker lamps were used which fit the same brackets. The high-speed suburban cars were later equipped with electric classification lights on the front dash; square metal plates were inserted in the holder attached to the front of the lense during daylight hours, while at night colored glass squares (green or white) were inserted in the same holders.

Destination signs on the high-speed suburban cars were:
St. Paul & Stillwater
Wildwood
Hazel Park
Mahtomedi
White Bear

Signs on cars that operated the extra runs were:
Hazel Park & Wildwood
Hazel Park & White Bear
Hazel Park & Mahtomedi

Local cars assigned to the Owen St. Station had the following readings:
- Wilkin St.
- Owen St.
- S. Stillwater
- To Station Only
- Union Depot
- St. Paul-Stillwater
- State Prison
- Ball Grounds
- Not In Service
- Chartered

Regular trains at meeting points were to take the right-hand track, whether main line or siding. All spring switches at permanent meeting points were set accordingly. All extra trains were to take the siding for regular trains at meeting points. Sections of trains were required to keep 2000 feet apart except when closing up at stations and meeting sidings.

Beginning in 1915 the employees' timetables were printed in booklet form. Changes noted in 1915 were minor. "South Stillwater" cars reported to the dispatcher for orders southbound at 5th and Laurel. Mention was made of Wildwood yard limits and the use of "motors" to switch passenger cars at Wildwood but no further details were given. The *first and* last "St. Paul-Stillwater" train leaving Stillwater ran via the "Owen St." line. Westbound trains from Mahtomedi pulled in ahead of Stillwater trains at Wildwood. Trains operating in two sections as far as Hazel Park had the first section as the local and the regular Stillwater train as the second section; the Stillwater train was to allow the Hazel Park train to back into the Hazel Park wye before proceeding.

Pedestrian entrance to and exit from Wildwood park was by means of a ramp and underpass beneath the double track north of the lower wye. All trains stopped here to load and unload passengers. Movements of the branch line trains through here were as follows.

"St. Paul-White Bear" trains: cars pulled up to the unloading platform at the ramp, then backed over the crossover and onto the westbound main track and continued backing until clear of the lower wye south leg switch; reversing direction cars pulled forward onto the wye track and the branch line. Returning from White Bear, cars used the south leg of the wye to reach the westbound main track, then backed up the main track to the unloading platform; when loading and unloading was completed the cars then proceeded westbound on the main track to St. Paul.

"White Bear-Mahtomedi" shuttle trains: coming from White Bear cars used the lower wye north leg to pull onto the westbound main track, then used the crossover to the eastbound main track to the unloading platform, and proceeded eastbound to Mahtomedi. Coming from Mahtomedi, cars used the westbound main track, stopping at the unloading platform, then used the lower wye north leg to pull onto the branch line to White Bear.

The route in downtown St. Paul was frequently changed for reasons not yet determined. In 1915 trains were again using the Cedar St. loop. During 1916 and 1917 the Main St. loop at Seven Corners was the terminal. In 1919 it was changed to: E. 7th St. — Broadway — E. 5th St. — wye at 5th and Sibley, backing down Sibley St. to the St. Paul Union Depot at 4th St. — then return via the same route. By April 1, 1925, the route had been changed to: E. 7th St. — Robert St. — 5th St. — wye at 5th & Sibley — return via the same route; this was still in effect in June, 1930.

Destination sign readings were changed prior to 1919 to: St. Paul-Stillwater, St. Paul-Wildwood, Mahtomedi, White Bear, and Mahtomedi-White Bear.

The Stillwater Division was assigned a work car, wire car, and snow plow, all three operating out of Owen St. Station.

Fare recording was a complicated procedure. On each car a round overhead fare register (minus the bell) was mounted on the left-hand front bulkhead with cords running alone the "pole side" of the car to the conductor's position. A rectangular box mounted on the right-hand front bulkhead held a tripsheet and was connected by two rods to a fare indicating dial mechanism mounted on the rear bulkhead. The conductor would set the dial for the amount of the fare collected and pull the appropriate cord; this would record the fare on the fare register and also actuate the rods which stamped the trip sheet with the amount of the fare. At each fare zone division the conductor was required to set the register back to zero and re-record the amount of fares for the passengers on board the car at that point.

Regular trains carried pouch mail to North St. Paul, Wildwood, Mahtomedi and Stillwater. Newspapers were also carried and delivered daily and Sunday to various stops along the line. On Sunday mornings the Duluth Ave. Station Mechanical Dept. men rode the car to E. 7th St. and Wabasha to help load the car with many large bundles of Sunday papers. Usually the front half of the car would be filled. The car ran as a regular train to White Bear (having dropped off the shopmen at the Duluth Ave. Station), then back to Wildwood and Mahtomedi, back to Wildwood, and then to Stillwater and South Stillwater. Bundles of newspapers were thrown off the car at required points by the motorman and conductor. The State Prison was located on the "South Stillwater" local line. Chartered cars were run through from St. Paul to the prison, with newly sentenced prisoners handcuffed to the car seats.

The following four pages comprise photographs of operations in Stillwater. While the space allowed is probably out of proportion to the importance of the subject, the quality of the photographs and the atmosphere they convey were irresistible. (All photographs John Runk; Joe Hutchinson collection)

"Windsplitter" 733 northbound on Main St., Stillwater, June 20, 1910. Operation around the loop was clockwise at this time.

A "Wilkin Street" car, one of the 868-872 series, southbound on Main St. at Chestnut St., Stillwater, August 19, 1912. Operation around the loop had been changed to counter-clockwise.

A "So. Stillwater" car, one of the 870-874 series, eastbound on Chestnut St., Stillwater, July 12, 1914.

The Stillwater Union Depot, looking north on Water St. with car 1261 on the siding, September 14, 1926.

Snow plow 38 plowing out the Stillwater Division main line at a passing siding March 18, 1917. Note the train order semaphore signal. (John Runk; Joe Hutchinson collection)

In the early 1920's the publication of employees' timetables was discontinued. Instead each train crew received a printed time card for its particular run on which were listed the train numbers, sidings and other time points, and scheduled meeting locations.

The train stops as of March, 1923, east of Duluth Ave. Station were typical of the operation in this decade. "St. Paul-Stillwater" line: Newcomb St., Atlantic St., Ocean St., English St., Phalen Ave., Johnson Pkwy., Clarence St., Tracy Ave., Etna St., Hager Ave., Birmingham Ave., Barclay St., Hazelwood Ave. (formerly Bock St.), Germaine St., Flandreau St., White Bear Ave., Kerwin St., Brand St., Keogh St., Harvester Ave., Ames Ave., Maryland Ave., Hyacinth Ave. (Hazel Park wye), Autumn Ave. (end of double track), Prospect Ave.-Helen St., Center St., Larpenteur Ave. (St. Paul city limits), Kimball St., Indiana Ave., Pennsylvania Ave., Margaret St., Charles St., Soo Line Crossing, Silver Lake, Long Lake, Wildwood, Curtin, Grant, Leis, Masterman, Parents (Stillwater city limits), Owen St. Station, William St., Edward St., 5th and Laurel Sts., 4th and Laurel Sts., Cherry St., Linden St., Mulberry St., Myrtle St., 3rd and Chestnut Sts., 2nd St., Main St., Stillwater Union Depot.

"Mahtomedi-White Bear" line: Mahtomedi, Fairmount, Oakleigh, East Shore Park, Lake View, Forest Heights, Willernie, Wildwood, Jay St., Lakewood, Glenview, Birchwood, Chester, Bellaire, Schneider, Cottage Park, Oak Grove, White Bear (St. Paul Auto Club), Lake Shore Station, Shady Lane, Clark Ave., 2nd and Banning Sts., 3rd St., 4th St., 5th St., 6th St.

The timetable that went into effect April 1, 1925, indicated that the sidings used for regular operation on the main line were Colby, Soo Line, Wildwood, and Goodrich; in Stillwater certain runs met southbound "Bayport" cars at 5th St. and Laurel.

On June 1, 1924, two cars collided head-on on "rattlesnake curve" west of Owen St. Station. The new summer schedule had just gone into effect and the motorman on the westbound train overlooked a meet with the eastbound train at Owen St. Station siding. As a result a system of automatic block signals was installed during 1925 by the Union Switch & Signal Co. to protect (1) the guantlet track on the bridge over the C. St. P. M. & O. Ry. at Hazel Park, and (2) the single track from Goodrich siding to Owen St. Station, Stillwater.

The effect of the decline in patronage is demonstrated by the service provided listed in the public timetable effective June 22, 1930. Weekday service to Stillwater was on 2 hour headway with some runs added in the morning and evening rush hours to provide hourly service during those periods. The White Bear branch was on 2 hour headway provided by through trains from St. Paul. The Mahtomedi branch had variable headway, half-hourly, hourly and 2 hourly, much of it provided by through trains from St. Paul. The morning rush hour saw a number of round trips between St. Paul and Wildwood,

with the two westbound Stillwater trains during that period running limited (non-stop) from Wildwood to 6th and Robert, St. Paul. The evening rush hour was an interesting operation (time is at 6th and Robert).

4:08 P.M. = one section to Stillwater, running limited to Autumn Ave. (end of double track).

4:38 P.M. = two sections: one to White Bear and one to Mahtomedi, both running limited to Autumn Ave.

5:08 P.M. = two sections: one to Stillwater, running limited to Margaret St.; and one to Mahtomedi, running limited to Autumn Ave.

5:22 P.M. = one section to Wildwood, running limited to Autumn Ave.

5:38 P.M. = two sections: one to White Bear, running limited to Autumn Ave.; and one to Mahtomedi, running limited to Kimball St.

6:08 P.M. = two sections: one to Stillwater, running limited to Margaret St.; and one to Mahtomedi, running limited to Autumn Ave.

6:38 P.M. = one section to White Bear, running limited to Autumn Ave.

Sidings used for meeting points were Colby, Pennsylvania, Soo Line and Wildwood. Sunday service to Stillwater, White Bear, and Mahtomedi was all on 2 hour headway. The Stillwater local lines were all on approximately 40 minute headway. Train #12 was assigned to the "Bayport" line, #13 to the "Wilkin St." line, and #14 to the "Owen St." line; all three lines ran around the Union Depot loop, with passengers transferring between them at Main and Chestnut Sts.

As related previously permission was received to abandon certain portions and the final runs took place: Willernie to Stillwater, August 11, 1932; Wildwood to White Bear, September 10, 1932, and the Stillwater local lines September 10, 1932.

The "Grand Ave." line in St. Paul was then extended to Mahtomedi as the "Grand-Mahtomedi" line, using standard streetcars. The first car left Duluth Ave. Station for Wildwood at 5:05 A.M. Thursday and left Wildwood for St. Paul at 5:31 A.M.; the first "Grand Ave." car to Mahtomedi left 7th St. and Wabasha St. at 5:58 A.M., and left Mahtomedi for St. Paul at 6:29 A.M. Short line service continued to Hazel Park, wyeing at Hyacinth Ave. "Grand-Mahtomedi" and "Grand-Hazel Park" destination signs were used. 30 minute service was provided during the rush hours with 2 hour service during the day.

This routing apparently did not work out too well, for on September 13, 1932, the "Grand Ave." line resumed its former status, and the "Randolph-Hazel Park-Mahtomedi" line was inaugurated, the latter combination to remain in effect until abandonment of streetcar service in St. Paul. All cars ran from the Ford Plant loop in St. Paul. Destination signs used were: "Randolph-Hazel Park", "Randolph to Cleveland", "Hazel Park-No. St. Paul", "Hazel Park-Wildwood", and "Hazel Park-Mahtomedi".

Block signal at the east end of Goodrich (Parrant's) siding, photographed March 30, 1926. (John Runk; Robert Bowes collection)

The automatic block signal system was removed upon abandonment, except for signals protecting the gauntlet track on the bridge over the C. St. P. M. & O. Ry. at Hazel Park. The use of train order semaphore signals was also discontinued, all dispatching being done by telephone only with the dispatcher located at Duluth Ave. Station.

Short line service to the Henry St. wye in North St. Paul was begun in 1934.

High-speed suburban cars 1116, 1117, 1119, 1257, and 1260-1263 had been equipped in 1932 with fare boxes for pay enter — pay leave fare collection for rush hour only service on the Mahtomedi line. On September 8, 1934, one-man operation — except during rush hours — was begun using rebuilt standard streetcars. On April 2, 1936, all service was provided with one-man cars, thus ending forever the use of the high-speed suburban cars.

Pouch mail service to North St. Paul, Wildwood and Mahtomedi was discontinued June 1, 1938. Wildwood Park was closed in 1938 so the loading platform passenger stop was discontinued, effective October 12th. The upper wye at Willernie was retained for use by short line cars.

The evening rush hour operation, right up to abandonment in 1951, continued to be an interesting affair. (Time listed was at 7th and Wabasha.)

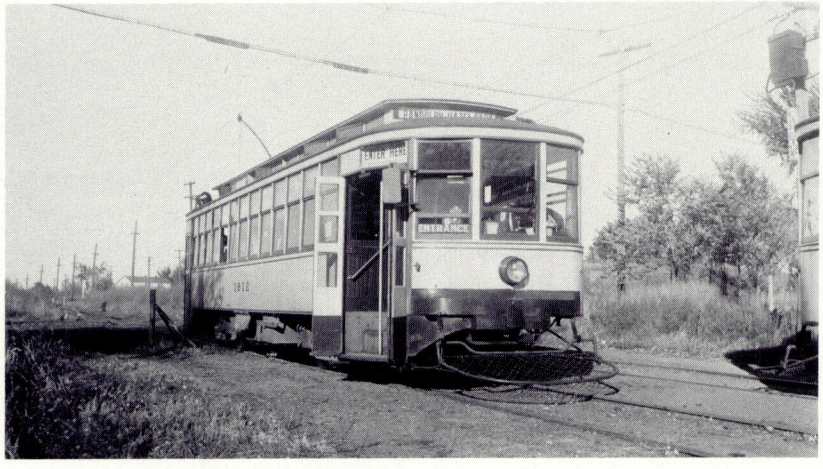
4:09 P.M. = two sections: the first to North St. Paul and the second to Mahtomedi.

5:10 P.M. = four sections: the first two to North St. Paul with one running limited to Larpenteur Ave., the third to Mahtomedi, and the fourth to Wildwood. (Toward the end only three sections were operated, the limited section to North St. Paul having been dropped.)

6:10 P.M. = two sections: the first to North St. Paul and the second to Mahtomedi.

Service on the Mahtomedi line during the 1940's was generally on hourly headway with more frequent rush hour service providing short line operation such as described above. During the 1930's and early 1940's the sidings used for regular meeting points were: Ivy Ave. (formerly Autumn Ave.) end of double track, Colby, Soo Line, and Wildwood (either the siding or the wye). In 1944 when the siding was installed at the Henry St. wye, only Ivy. Ave. end of double track and the Henry St. siding were used as meeting points.

A meet at the end of double track, Ivy Ave., St. Paul, in 1945. Car 1812 is westbound to St. Paul. (W. C. Whittaker; James Foster collection)



The Lake Minnetonka Division
"The Great White Way"
"The Route of Greenery and Scenery"

At the start of operations in 1905 and 1906, the route used in downtown Minneapolis was via Hennepin Ave. — 3rd St. — 1st Ave. N. — 6th St. — Hennepin Ave.; layover was taken at 1st Ave. N. and 3rd St. On May 6, 1906, the route was changed to Hennepin Ave. — 7th St. — 1st Ave. N. — 6th St. — Hennepin Ave. A combination waiting room-ticket office-baggage and express office located at 17 N. 6th St. was opened May 16, 1907, with trains taking their layover time in front of the ticket office. There were no agency stations on the line but commutation and other special tickets were sold at two drug stores, one in Hopkins operated by N.H. Nelson, and the other in Excelsior operated by the Minnetonka Drug Co.

Timetables of the 1908 to 1910 period illustrate the extensive service provided. Service to Hopkins was operated separately on 30 minute headway by "Como-Hopkins" runs of the "Como-Harriet" line (begun June 17, 1906). During the summer months base headway on weekdays was half-hourly to Excelsior, hourly to Tonka Bay, and 8 round trips over the Deephaven line. This service required 4 cars on the main line and 1 car on the Deephaven line. Trains leaving Minneapolis on the hour ran local to Tonka Bay, while those leaving on the half-hour ran limited to Excelsior. The Sunday and holiday schedule provided for 10 minute headway to Excelsior, half-hourly to Tonka Bay, and 10 round trips (hourly) on the Deephaven line. "Como-Hopkins" runs continued the same half-hourly separate service to Hopkins. This service required 12 cars on the main line and 2 cars on the Deephaven line. Trains leaving Minneapolis on the hour

and half-hour ran local to Tonka Bay, while those leaving at 10, 20, 40 and 50 minutes past the hour ran limited to Excelsior. Winter service was substantially reduced as the line then served only the persons residing year around in the lake communities or on the lake. Weekday and Sunday service was hourly to Excelsior with 6 round trips to Tonka Bay. An additional round trip was run to Excelsior and Tonka Bay late in the evening on Wednesday and Saturday only. The Deephaven line was served with 4 round trips on weekdays and 2 round trips on Sundays. We have no information on the winter "Como-Hopkins" service.

The destination signs used for the type of service being operated were the following.

"Lake Minnetonka"	local service from Minneapolis to 2nd St., Excelsior
"Excelsior Limited"	limited service from Minneapolis to 2nd St., Excelsior. No stops were made between the Lake Harriet loop and Dock Station, Excelsior, except at 9th Ave., Hopkins.
"Excelsior Excursion"	limited service from Minneapolis to Dock Station, Excelsior. No stops were made between Lake Harriet loop and the Dock Station except at 9th Ave., Hopkins.
"Tonka Bay"	local service from Minneapolis to Tonka Bay. Trains ran through the Wildhurst loop only if boat connections were to be made.
"Deephaven"	local service from Minneapolis to Deephaven.
"Hopkins"	local service from Minneapolis to Hopkins.
"Como-Hopkins"	local service to Hopkins operated separately by runs of the "Como-Harriet" line from St. Paul.

Westbound Lake Minnetonka and Deephaven trains stopped *only* to receive passengers for points west of Hopkins at 6th St., Minneapolis; 7th St., Minneapolis; 12th St., Minneapolis; Groveland Ave., Minneapolis; Douglas Ave., Minneapolis; 29th St., Minneapolis; Lake St., Minneapolis; Lake Harriet Station, Minneapolis; Lake Harriet loop, Minneapolis; France Ave., Minneapolis city limits; Grimes, Browndale, Brookside, Mendelssohn, and Hopkins Substation. Train stops on the Lake Minnetonka line were: 9th Ave., Hopkins; Deephaven Jct.; Glen Lake; Clearspring; Vine Hill; Christmas Lake; Dock Station, Excelsior; 1st St., Excelsior; 2nd St., Excelsior; 3rd St., Excelsior; Manitou; Crescent Beach; Wildhurst (only for boat connections); and Tonka Bay. Train stops on the Deephaven line were: 9th Ave., Hopkins; Deephaven Jct.; Baker; Boulevard; Groveland; Breezy Point; Northome; and Deephaven. Eastbound trains stopped at points west of Lake St., Minneapolis, to discharge passengers from west of Hopkins (no stop was made at Lake Harriet Station, Minneapolis); east of Lake St., Minneapolis, all local stops were made to 6th St.

Trains were composed of one or more sections of single cars. Heavy Sunday and holiday traffic often required 5 or 6 sections of each train. There were numerous instances when there were as many as 14 or 15 sections of one train. Extra trains were often added when a special event was being held. Sometimes as many as 60 cars would be on the line at one time, necessitating storage tracks for about 40 cars and a waiting station opposite the Dock Station, Excelsior. The train leaving Minneapolis for Excelsior at 4:03 A.M. was operated for the benefit of fishermen, and carried the name "The Early Bird". The Dock Station at Excelsior was the busiest place on the entire line as connections were made here with most of the steamboat passenger and excursion runs and the ferryboat runs to Big Island Park. A dispatcher was stationed at Excelsior in the dome of the dock station building. Communication with train crews was provided by telephones housed in wooden booths located at various points along the right-of-way. Originally all Lake Minnetonka, Deephaven, and Hopkins trains called the dispatcher at the Lake Harriet loop, Minneapolis; this was moved in May, 1909, to the "city limits sand pit telephone" at France Ave., Minneapolis. Deephaven trains reported to the dispatcher at Deephaven Jct. in both directions and before leaving Deephaven eastbound. Tonka Bay trains reported to the dispatcher at 2nd St., Excelsior, in both directions and before leaving Tonka Bay eastbound.

Wayside shelters were erected at most major stops on the right-of-way. Roof signs on these shelters instructed passengers: "To stop trains at night a light should be waved across the track when train is at least 1000 feet distant."

Mileage Table and Running Time: 1913 (1915 if different):

Station	Cumulative Mileage	Running Time from Mpls. — 6th St.
Minneapolis-6th St. Station	0.00	0
Minneapolis-Lake St. & Hennepin Ave.	2.59	
Lake Harriet-42nd St. Station	4.33	
Lake Harriet Loop	4.63	
Minneapolis-France Ave.	5.45	24
Grimes	5.72	
Browndale	6.25	
Brookside	6.71	
Interlachen	7.98	
Blake (Mendelssohn)	8.29	
Hopkins-Substation	9.05 (9.03)	
Hopkins-9th Ave.	9.54 (9.53)	31
Deephaven Junction	10.66 (10.65)	33
Mayview	11.84 (11.83)	35
Glen Lake	12.64	36
Clearspring	14.77	39
Vine Hill	15.89	41
Christmas Lake	17.27 (17.26)	43
Excelsior-Dock Station	17.91	45
Excelsior-2nd St.	18.12 (18.13)	
Excelsior-George St.	18.53	46½
Manitou	19.47 (19.48)	49
Crescent Beach	20.15 (20.19)	51
Wildhurst Dock	20.41 (20.46)	52
Tonka Bay	21.19 (21.26)	55
Hopkins-9th Ave.	9.54	
Hopkins-wye	9.79	
Deephaven Junction	10.66 (10.65)	
Baker (Minnetonka Mills)	11.83	
Williston Park	12.79	
Tonkawood	13.63	
Groveland	14.86	
Breezy Point (Maple Woods)	15.48	
Northome	15.91	
Deephaven	16.64	

Maximum speed between France Ave. (Minneapolis) and Excelsior was prescribed by operating rules as 60 miles per hour with 2000 ft. spacing between individual cars.

The over-all average schedule speed on the Lake Minnetonka line was 23 m.p.h. The average schedule speeds for individual portions were: France Ave. to Hopkins 35 m.p.h., Hopkins to Dock Station, Excelsior 36 m.p.h., and Dock Station to Tonka Bay 20 m.p.h. On the Deephaven line, the running time for the portion from Deephaven Junction to Deephaven apparently was 8 to 10 minutes, giving a schedule speed of 36 to 45 m.p.h.

During 1914 the Lake Minnetonka Division operated 789,332 car miles and carried 4,460,895 passengers. The Stillwater Division operated more car miles and carried more passengers, but the passengers per car mile averaged 5.65 for the Lake Minnetonka Division compared to 5.04 for the Stillwater Division.

Baggage and express service was provided to all points on the railway lines, with baggage service only on the steamboat lines. Baggage was defined as trunks, valises, dress suit cases, telescopes, satchels, handbags, or steamer bags containing wearing apparel or personal effects. No single piece of baggage weighing more than 150 lbs. would be accepted, and a maximum of 150 lbs., whether in one or more pieces, would be accepted on any one ticket for any one trip of the baggage train or boat. Express packages of general merchandise, any one article not to exceed $50 in value, were carried at the following rates: 20 lbs. and less = $.15, 21 to 50 lbs. = $.25, 51 to 75

lbs. = $.30, 76 to 100 lbs. = $.35, 100 lbs. and over = $.40 per 100 lbs. Special rates were available for beer or pop in cases and kegs, furniture, milk in cans, empty beer and pop cases and kegs, empty milk cans, empty chicken crates, and empty ice cream tubs. Express and baggage were handled out of the ticket office in Minneapolis. Shipments were delivered at the stations in Hopkins, Deephaven, Excelsior and Tonka Bay. Baggage was transferred to the steamboats at the Excelsior, Wildhurst and Deephaven docks. One daily round trip was operated between Minneapolis, Excelsior and Tonka Bay. A second round trip was operated Monday through Saturday, between Minneapolis and Hopkins, Deephaven, Excelsior and Tonka Bay.

Daily

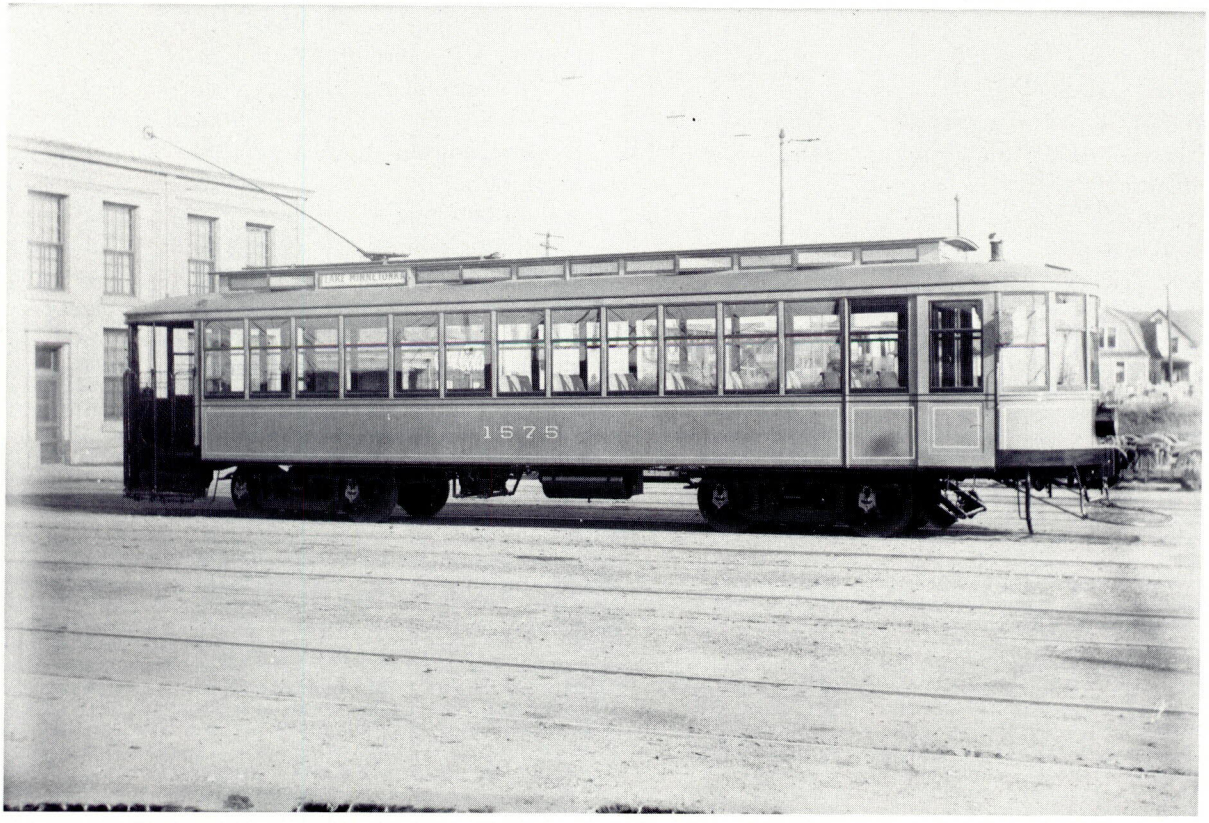
Leave Minneapolis	8:48 A.M.
Arrive Excelsior	9:28 A.M.
Leave Excelsior	9:43 A.M.
Arrive Tonka Bay	9:55 A.M.
Leave Tonka Bay	10:33 A.M.
Arrive Minneapolis	11:26 A.M.

Daily except Sunday

Leave Minneapolis	2:33 P.M.
Arrive Excelsior	3:13 P.M.
Leave Excelsior	3:43 P.M.
Arrive Tonka Bay	3:55 P.M.
Leave Tonka Bay	4:33 P.M.
Arrive Hopkins-Excelsior Ave.	5:05 P.M.
Arrive Deephaven	5:23 P.M.
Leave Deephaven	5:58 P.M.
Arrive Minneapolis	6:28 P.M.

Through 1910 the baggage train operated to St. Paul and return between the two Lake Minnetonka runs. Snow plows also followed the same route as the afternoon baggage run; procedure was to back into Hopkins on 9th Ave., wye, back out of Hopkins, and then proceed to Deephaven. During the winter months, the morning baggage train run was discontinued.

The baggage car, snow plow, wire car, and work car assigned to this Division operated out of Nicollet and East Side Stations, Minneapolis.



This class of car was used to operate extra and charter service on the Lake Minnetonka Division. (TCRT)

Effective July 10, 1916, Hopkins service was separated from the "Como-Harriet" line and operated from the Minneapolis ticket office. Several years later service was again combined.

With regard to passenger waiting stations, both the nature of the traffic and the experience gained from the Stillwater Division affected the size of the structures, although the standard open type design was employed with construction of steel frame and corrugated metal walls (with one notable exception). This was the situation:

Lake Minnetonka line:

Lake Harriet-waiting platform and steel canopy shelter (the building was owned by the Minneapolis Park Board).
Grimes — gravel and cinder platform
Wooddale — gravel and cinder platform
Brookside — 10' x 14'
Mackey — gravel and cinder platform
Meadow Brook — 8' x 10'
Interlachen — 8' x 10'
Blake — 12' x 28'
Harrison Ave. — 6' x 10'
3rd Ave. — 8' x 10'
9th Ave. — 8' x 10'
Deephaven Jct. — 8' x 10'
Mayview — 8' x 10'
Glen Lake — 10' x 14'
Clear Spring — 10' x 14'
Vine Hill — 7' x 12'
Fair Oaks — 8' x 10'
Christmas Lake — 7' x 12'
Division St. — gravel and cinder platform
Excelsior — 40' x 105' frame and stucco structure with 13' x 13' dispatcher's office in one end
George St. — 8' x 10'
Manitou — 8' x 10'
Crescent Beach — 8'6" x 32'0"
Wildhurst — 8'6" x 16'6"
Tonka Bay — 8'6" x 24'0"

Deephaven line:
Minnetonka Mills — 8' x 10'
Williston Park — 8' x 10'
M. & St. L. Ry. crossing-towerman's residence — 19'6" x 24'4"
Tonkawood — 8' x 10'
Gray's Bay — 8' x 10'
Groveland — 8' x 30'
Maplewood — 8'9" x 24'0"
Northome — 11' x 35'
Deephaven Docks — 16' x 25' (located on the dock substructure).

The first reduction in service was to change the Sunday and holiday schedule to provide 15 minute headway. The baggage train was cut to one daily round trip all year. As of March, 1923, westbound trains stopped to take on passengers for Hopkins or points west of Hopkins at: 6th St. ticket office, 7th St., 8th St., 11th St., 12th St., Groveland Terrace, Douglas Ave., Lagoon Ave., Lake St., 42nd St. (Harriet platform), Upton Ave., Xerxes Ave., and France Ave., all in Minneapolis; Grimes, Wooddale, Browndale, Mackey, Brookside, Interlachen, Blake (formerly Mendelssohn), Hopkins Substation — Central Ave., Hopkins — 9th Ave., Deephaven Jct., Mayview, Glen Lake, Clearsprings, Vine Hill, Christmas Lake; Dock Station, 1st St., 2nd St., 3rd St., and George St., all in Excelsior; Manitou, Crescent Beach, Wildhurst, and Tonka Bay. On the Deephaven line, train stops after Deephaven Jct., were: Minnetonka Mills, Williston Park, Tonkawood, Gray's Bay, Groveland, Maple Woods, Northome, and Deephaven. All eastbound trains stopped to take on or discharge passengers only at stations between Hopkins and France Ave., and then operated as local trains between France Ave. to the 6th St. ticket office. "Como-Hopkins" car stops on the right-of-way were: Irving Ave., 32nd St., 33rd St., 34th St., 35th St., 36th St., Lakewood Cemetary, 39th and 40th Sts. (Cottage City), Lake Harriet platform, 42nd St., Linden Hills Blvd., Lake Harriet loop, Upton Ave., Xerxes Ave., York Ave., Zenith Ave., Abbott Ave., Beard Ave., Drew Ave., France Ave., all in Minneapolis; Grimes, Wooddale, Browndale, Mackey, Brookside, Interlachen, Blake; Harrison Ave., 3rd Ave., Central Ave., and 9th Ave., all in Hopkins.

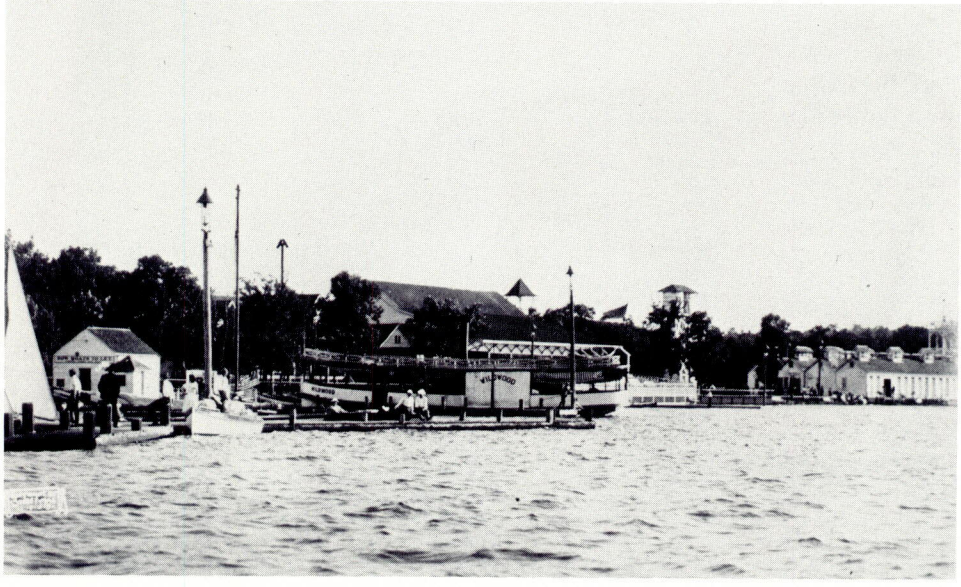
The amusement park at Excelsior was built by outside parties adjacent to the Dock Station during 1924. (The Dock Station building later became part of the amusement park.)

Information as to further reductions in passenger service through the declining years is not available. Baggage and express service was discontinued September 10, 1923. On May 28, 1928, the 6th St. ticket office was closed and the service transferred to the Greyhound bus depot on the corner of 1st Ave. N. and 7th St. N.; the routing of eastbound trains was changed to Hennepin Ave. — 11th St. — 1st Ave. N. — 6th St. — Hennepin, and the schedule revised to allow for a stop of two minutes at the bus depot. On September 20, 1931, through service from Minneapolis to Deephaven was discontinued. Shuttle service from Deephaven Jct. to Deephaven was operated weekdays and Saturdays using rebuilt double end car #1230; one round trip each morning and evening, and all Sunday and holiday service, was provided by "Como-Hopkins" cars running through to Deephaven. Finally, on August 11, 1932, all service west of Hopkins was discontinued and the track abandoned. Only the "Como-Hopkins" cars to Hopkins continued to operate.

The Minnetonka and White Bear Navigation Co. Wildwood Park, White Bear Lake

Wildwood Park had a reputation as a "tough resort" when TCRT took over in 1898. The property became part of the Minneapolis & St. Paul Suburban Ry. in 1899 and was upgraded to TCRT standards. $10,467 was spent on improvements during 1904. A brief contemporary account of 1905 reported that the buildings were painted white, included a tall tower and roller coaster, and a pier extended into the lake. The pier was used by a stern paddle-wheel steamboat, also painted white, operated on White Bear Lake by the White Bear Navigation Co. (never a part of TCRT) connecting the village of White Bear with Wildwood Park.

During 1909 $23,683 was invested in additional construction, the major item being a new brick pavilion which contained a dance hall and promenade, restaurant, refreshment counter, and a broad observation porch over-looking the lake. The result was a transformation of the property into a facility which combined the best features of a park, lake and summer resort.

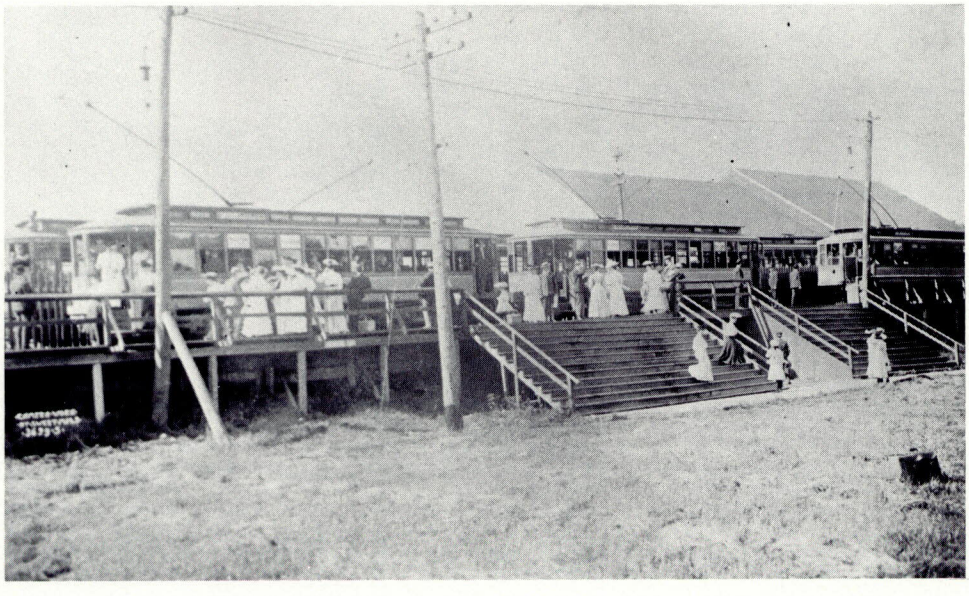


Above: Early photograph of Wildwood Park on White Bear Lake, about 1905. Note the side-paddle wheel steamboat "Wildwood" at the dock. (Sweet Studios; Joe Hutchinson collection)

Below: A view of Wildwood Park taken from the right-of-way in 1911. (Historical collection of S. D. Dimond)

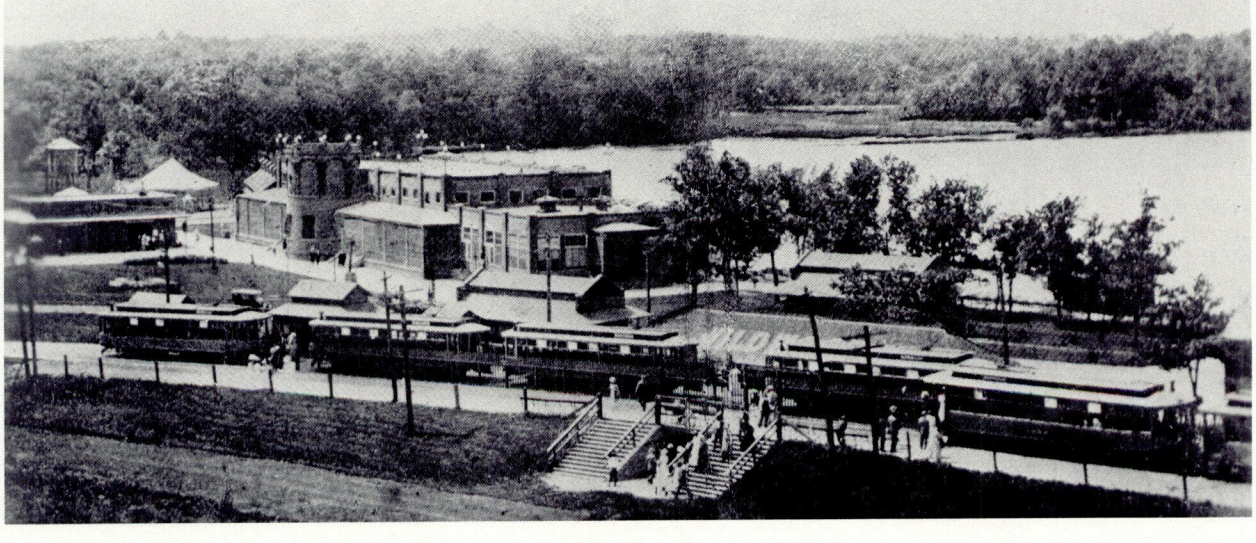
The property conveyed by the M. & St. P. Suburban Ry. to the M. & W. B. Navigation Co. in the reorganization of December, 1910, consisted of 28.7 acres of land, the following structures, and all docks.

Description	Size	Construction	Notes
Pavilion	90'x180'	1 story-brick	
Bowling Alley	140'x70'	2 story-frame	contained 11 alleys
Bath House	60'x100'	1 story-frame	
Boat House	16'x16'	1 story-frame	included 60 rowboats
Men's Toilet	14'x42'	1 story-frame	
Women's Toilet	35'x18'	1 story-frame	
Refreshment Stand	12'x7'	1 story-frame	
Sewerage Pump House	14'x10'	1 story-frame	
Cottage	30'x40'	frame	
Ice House	38'x54'	2 story-frame	
200 Park Benches			
Figure 8 Roller Coaster (damaged by fire)			
1 Boat Slide			
1 Water Toboggan			



Left: The pedestrian underpass at the Wildwood Park station (in the background) about 1905. (Sweet Studios; Minnesota Historical Society collection)

Below: A later view of the Wildwood Park station showing the pavilion built in 1909. (John Runk; Joe Hutchinson collection)



The normal operating season was from May 30th through September 1st. Activities available at Wildwood during the prosperous years perhaps are best described by summarizing company promotional literature of the 1915-1916 period.

Boating: a large fleet of rowboats was available for rentals. Gasoline-engine powered launches left the Wildwood Park dock at frequent intervals for lake trips; these were also available for charter by parties.

Fishing: fishing equipment of all kinds, including bait, was available at the Boat House.

Picnicking: the picnic grove was located along the shore of the lake. Playground outfits for the children were provided and swings were scattered around the grounds. A place was provided for playing indoor baseball. Near the Waiting Station was a regulation-size baseball diamond. A Picnic Pavilion on the grounds, supplied with benches and picnic tables, also contained a refreshment counter where soft drinks, sandwiches, coffee (by the cup or in large quantities), ice cream (by the cone or gallon) and other refreshments were served. A specialty was made of serving picnic lunches to large parties. Adjoining the Picnic Pavilion was a picnic kitchen with heated stoves and fresh water furnished free.

Swimming: a fine sandy beach was maintained. The Bath House contained rest rooms (the ladies' room was in charge of a matron) plus individual rooms (provided with bath towels) available for rental. Swimming garments could also be rented. Water sport devices were provided, including a water chute and a diving platform with several spring boards at various heights.

Bowling: a large building near the Waiting Station contained 11 fully-equipped alleys.

The Roller Coaster offered a sensational and exhilarating ride.

Amusement features included: the Fun Factory (distorting mirrors), Postal Photo Gallery (photographs and photographic postcards), Shooting Gallery, Penny Arcade, Ball throwing and ring tossing, and a Carousel.

On Sundays and holidays special programs of water sports were given, including baseball played on water, water polo, diving exhibitions, and swimming matches. Private swimming lessons were given.

The Dance Hall with promenade overlooking the lake was located in the Main Pavilion. Dancing to quality orchestras was offered every weekday from 2:30 to 5:00 P.M. and 8:00 to 10:30 P.M. Exhibition dances were given from time to time.

On Sundays free orchestral concerts were given from the veranda of the Main Pavilion, 3:00 to 5:00 P.M. and 8:00 to 10:30 P.M.

The Restaurant in the Main Pavilion provided excellent food (fresh lake fish dinners a specialty) with a la carte service. On Sundays and holidays a special table d'hote dinner was served from 11:30 A.M. to 3:00 P.M. The main refreshment counter was in the center of the pavilion at the entrance to the dance hall; another was located in the Waiting Station.

A specialty was made of entertaining large picnic parties for businesses, clubs and conventions from Minneapolis, St. Paul and Stillwater.

Family parties were also promoted. Concrete walks, flowers, an abundance of trees, well-kept lawns, and high standards of cleanliness and maintenance were employed to improve the park's attractiveness.

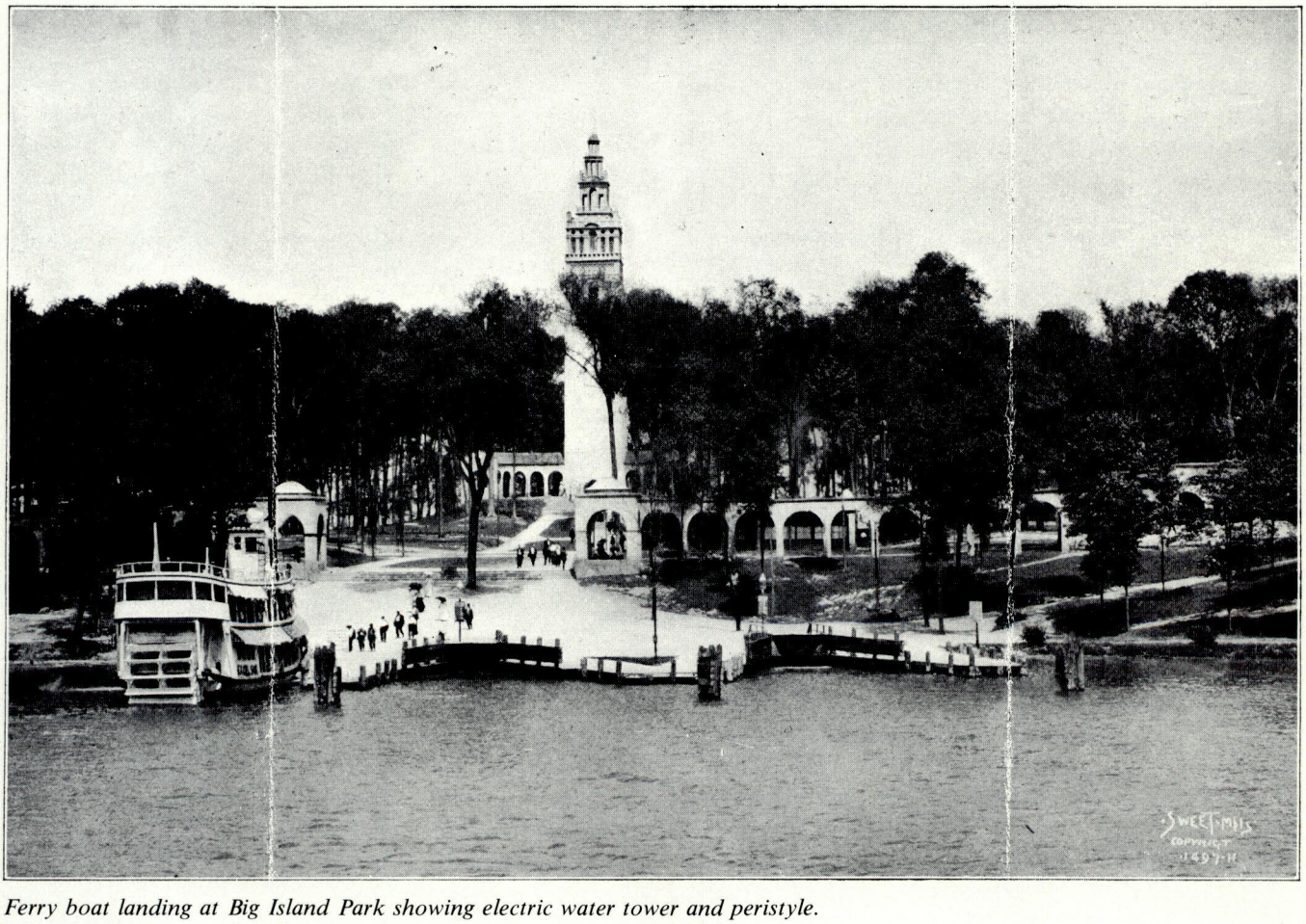
In 1917 $25,000 was spent on construction of a new bath house.

During 1928 and 1929 approximately $2,000 was spent each year on improvements. In 1930 an additional $4,867 was invested. However patronage continued to decline and after the 1932 railway line abandonments the park was leased to a succession of amusement companies. For several years prior to 1938 the revenue from the lease was insufficient to cover the cost of real estate taxes and insurance on the property and buildings. The park was closed at the end of the 1938 season, the buildings demolished, and the property sold.

The Wildwood Park pavilion, built in 1909, as seen from the lake side. (TCRT)

Big Island Park, Lake Minnetonka

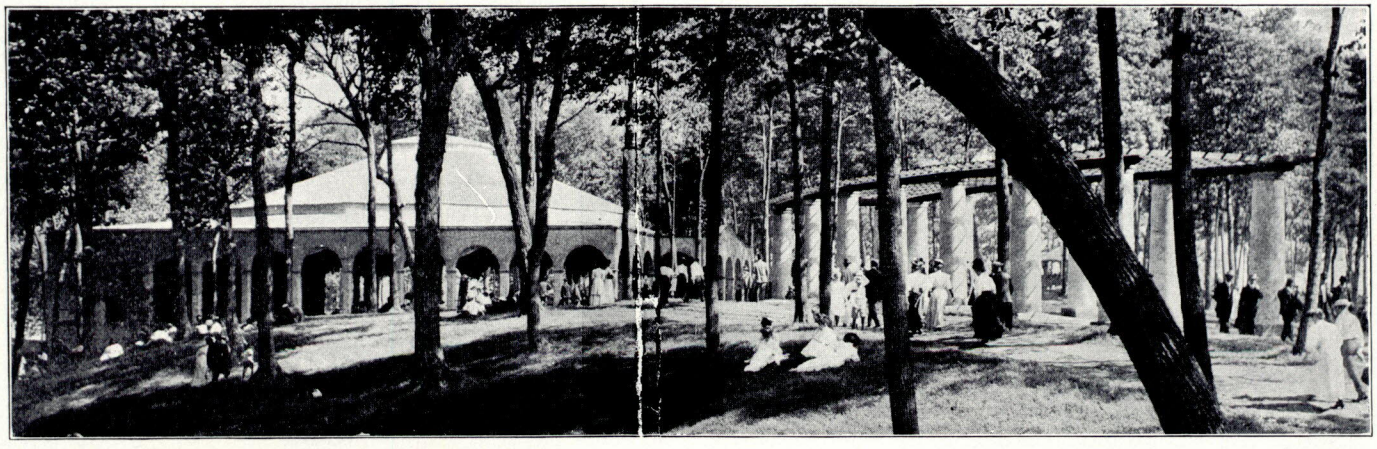
In 1905, 65 acres of land were purchased on Big Island (or Morse Island as it was once known) in Lake Minnetonka for the purpose of establishing an amusement park and picnic grounds. Construction of Big Island Park was completed during 1906. A power transmission line was extended by submarine cable to a substation on the island; thousands of electric lights were strung around the buildings and in the trees. A well 400' deep with 8" casing was drilled, the water tower being a 200' high spire built of steel and concrete (a copy of a tower in Seville, Spain). The tower was furnished with powerful electric spotlights to light up the lake at night as well as being studded with electric lights and was thus aptly named the Electric Tower. At the base of the tower was a shelter house affording fine views of the lake. Near the Electric Tower were constructed four modern concrete picnic kitchens, all of Spanish Mission architecture, provided with stoves, running water, ice and storage. (Picnic parties could reserve these kitchens in advance; ice and fuel were provided free of charge.) A Music Casino, also of Spanish Mission architecture, constructed of concrete, steel and glass, containing a screened reflecting shell and large sloping seating arrangement, was built for giving band concerts. Trellised arbours, called pergolas, (concrete pillars supporting overhead wooden trellises) were used for the major walkways through the park. Several amusement features were also constructed: Old Mill, Roller Coaster, Scenic Ride to Yellowstone Park, Carousel, Fun Factory and Pennyodeon. Access to Big Island Park was by ferry boat only as it was about 2 miles out in the lake from Excelsior. Company promotional literature stated that the park abounded in beautifully wooded heights, shady sylvan dales, rolling lawns, grand old trees, inviting nooks and ravines; all forming an ideal retreat for those who loved the pleasure of a good old-fashioned family or party picnic with all the comforts one could ask. Not only was the park beautiful in nature, and a charming resort to welcome the tired when the city's heat and noise became wearisome, but it offered just enough high-grade entertainment features to make one's holiday merry. Rest, relaxation and recreation could be enjoyed under ideal conditions. The finest bands and orchestras were hired to give twice-a-day concerts in the casino; some of these were: John Phillip Sousa's band, Arthur Pryor's band, The Banda Rossa ("The Royal Italian Band"), Minneapolis Orpheum Theatre Orchestra "The Imperials" (25 men), and the Lindquist Ladies Symphony Orchestra (24 ladies).



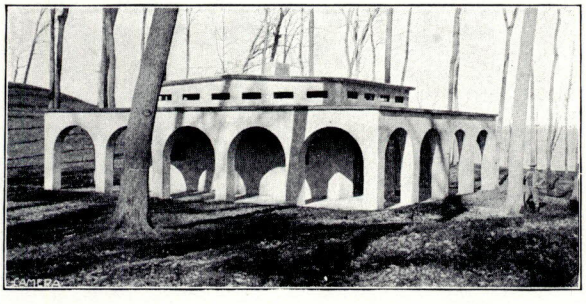
Ferry boat landing at Big Island Park showing electric water tower and peristyle.

The list of property conveyed by the M. & St. P. Suburban Ry. to the M. & W. B. Navigation Co. in the re-organization of December, 1910, provides a better insight into the extensive facilities constructed on the island.

Description	Size	Stories	Construction
Electric Light and Water Tower	25'x25' at the base	186' high	steel frame; tile and cement plaster
Music Hall	126'x161'	1	steel frame; tile
Amusement Building	54'6"x78'	1	tile
Pavilion	62'6"x203'	1	frame
2 Women's Toilets	20'x20' each	1	tile
1 Men's Toilet	36'x27'	1	tile
	9'x13' ell	1	tile
Women's Dormitory	54'x28'	2	tile
Men's Dormitory	85'x28'	2	tile
Staff Kitchen	69'x20'	1	frame
	20'x20' ell	1	frame
2 Picnic Kitchens	29'x20' each	1	tile
Figure 8 Roller Coaster			frame
Band Stand	15'x15'	1½	frame
Caretaker's Cottage	26'x18'	1	tile
Pump House	7'6"x7'6"	1	tile
Ice House	40'x50'	1	frame
Horse Barn attached	28'6"x18'6"	1	frame
Boat House	20'x11'	1	frame
48 Rowboats			



A picture through the trees; the casino on the left, the pergola on the right.



Picnic Kitchen — stoves, water, ice furnished free.

Tonka Bay Hotel, Lake Minnetonka

The first of the large resort hotels at Lake Minnetonka was the Minnetonka Lake Park Hotel at Minnetonka Lake Park. (The name of the hotel and the community were subsequently changed to Lake Park, and then Tonka Bay.) Designed by L. S. Buffington, the building was completed in the spring of 1879 on ground laid out for the Northwestern Sunday School Association. An oblong frame structure, it was situated on a high area providing a beautiful view of the lake. The building was four stories high with three stories of verandas, and crowned with three cupolas, one of which had observation balconies. A total of approximately 200 rooms was provided, with one floor given to family suites and a dining room seating 500 persons. Promotional literature boasted about the total of 16 electric lights the building contained. The Minneapolis & St. Louis Ry. built their line from Hopkins Junction to Winthrop during 1879-1880 and in so doing also built a branch line almost to the front veranda of the hotel. The original purpose in forming the community, laying out the grounds and building the hotel, was to conduct religious activities similar to those carried out by the chautauqua movement. This was done during the first year of operation, but in 1880 religious instruction ended and the hotel became a pleasure resort under the ownership of I. C. Seely and N. S. Griswold. Reference was made in May, 1884, to the management of the hotel being under the direction of Thomas Lowry, W. H. Truesdale, and the Minneapolis & St. Louis Ry.

The Hotel St. Louis was built during 1879-1880 at Deephaven on 100 acres of land owned by Charles Gibson, a St. Louis lawyer, who also owned the Southern Hotel in St. Louis. W. D. Washburn was financially involved; in addition to his flour mill and saw mill holdings, he was also president of the Minneapolis & St. Louis Ry. The building was four stories high, painted gray with green trim, and had a capacity of 400 guests. It was not until 1887 that a railroad branch line was built from Hopkins to Deephaven by the Chicago, Milwaukee & St. Paul Ry.

The largest and plushest of all the hotels was the Lafayette Hotel constructed by James J. Hill's Great Northern Ry. at Minnetonka Beach. The building measured 745' long, 95' wide, and five stories (counting gables) high, and contained approximately 800 rooms. It was opened July 4, 1882, with an extravagant celebration. The Great Northern Ry. had built a branch line during 1881 from Wayzata (Lake Jct.) to Spring Park to serve the hotel.

There were numerous smaller resort hotels, as well as resorts with cottages, scattered around the lake.

Hardly had the Lafayette Hotel opened than the beginning of the decline in tourist traffic began. It was reported in 1882 that the Lake Park Hotel was doing the best business but even that was not up to expectations. As the railroads made additional resort territory to the north and west more acceesible, the number of tourists from other parts of the U.S. visiting the lake gradually declined. By 1890 the height of the resort era at Lake Minnetonka had been reached. The nationwide financial depression which reached its depth in 1893 added the finishing touches to the decline. Larger resort hotels began incurring operating losses. The Lafayette Hotel was destroyed by a spectacular fire of suspicious origin on October 5, 1897. (The Lafayette Club was later built on the site.) The Hotel St. Louis closed about 1903 and was torn down in 1907. The Lake Park Hotel, however, was extensively remodeled and renovated during 1904 and 1905, re-named the Tonka Bay Hotel, and continued in operation under the ownership of the Minneapolis & St. Louis Ry. Many of the smaller resort hotels and resorts continued in operation into the early 1900's.

TCRT decided the resort hotel business was also in need of its managerial and promotional expertise. The Tonka Bay Hotel was leased from the M. & St. L. Ry. along with that railroad's Tonka Bay branch line in 1907. The hotel was thoroughly overhauled and brought up to a high standard of excellence, and opened under TCRT's management June 13, 1908. According to promotional literature it was the lake's largest and best hotel, the favored spot of tourists who came every summer to spend their vacation at the lake. Meals were served at all hours, a la carte or table d'hote. Cuisine and service were of the highest standards. Rooms were offered single or en suite, with or without bath, at rates of $3 to $5 per day. Special rates were quoted for families or parties for the season.

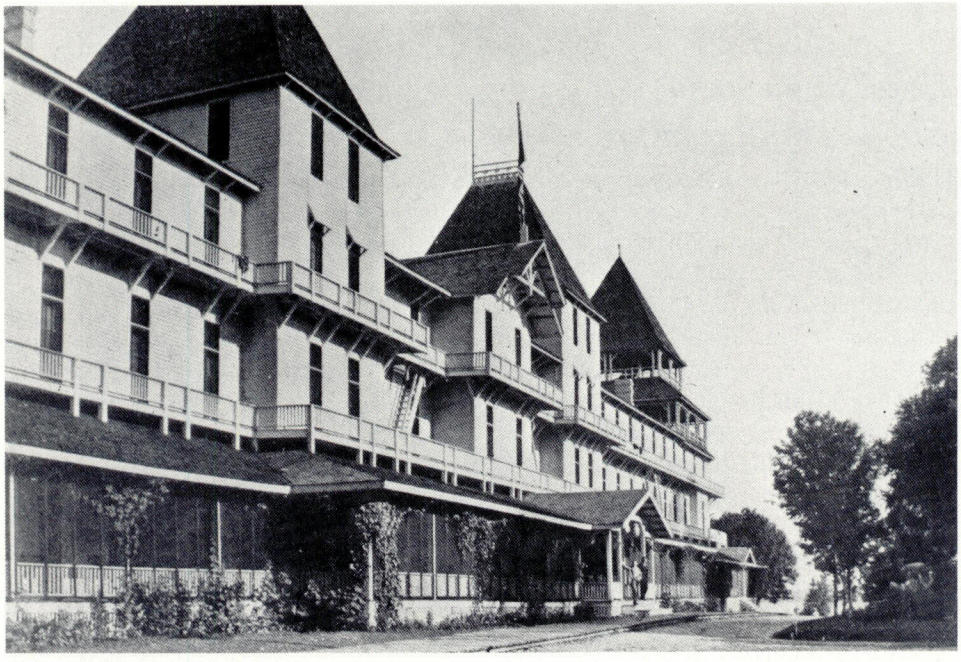
The property at Tonka bay conveyed by the M. & St. P. Suburban Ry. to the M. & W.B. Navigation Co. in the re-organization of December, 1910, is also listed to indicate the extent of the facilities at this location.

Description	Size	Stories	Const.
Tonka Bay Hotel	?	3	frame
Tonka Bay Hotel Laundry	20'x60'	1	frame
	7'6"x8' ell	1	frame
Casino (roller skating rink)	190'x82'	1	frame
	40'x48' ell	1	frame
Dancing Pavilion	96'x60'	1	frame
Ice House	65'x24'6"	1	frame
Engine Room	36'6"x32'6"	1	frame
	26'x12'6" ell	1	frame
2 Pumping Stations			

Facing Page

Above: The Tonka Bay Hotel, Lake Minnetonka. (James Foster collection)

Below: The Tonka Bay pavilion. To the left are the steamer docks and the yacht club clubhouse. The three cupolas of the Tonka Bay Hotel rise above the pavilion and trees. After TCRT closed the hotel, the pavilion was moved by barge to Excelsior where it became the Casino (Dance Hall) at the Excelsior Amusement Park. It was destroyed by fire in 1973. (Lake Minnetonka historical collection of S. D. Dimond)



The Demise of Big Island Park and Tonka Bay Hotel

According to TCRT annual reports, substantial sums of money were invested at Lake Minnetonka.

1905:	Big Island Park	$ 31,780
1906:	Big Island Park and Steamboats	$261,364
1907:	Big Island Park, Tonka Bay Hotel and Steamboats	$194,814
1908:	Big Island Park and Tonka Bay Hotel	$ 29,554
1909:	Big Island Park and Tonka Bay Hotel	$ 3,895
Total Capital Investment		$521,407

Unfortunately Big Island Park and the Tonka Bay Hotel were unprofitable operations. Big Island Park accumulated an operating deficit of $250,000 by 1911. The Park and the Hotel were permanently closed August 28, 1911. TCRT's Board of Directors had received an offer of $60,000 for the property in March, 1916. The Park buildings and amusement equipment were dismantled and demolished during 1918 to obtain copper, steel and other metals needed for World War I.

Lake Minnetonka Steamboat Transportation

To place TCRT's decision to operate regular steamboat service on the lake in proper perspective, it is both necessary and interesting to digress and briefly summarize the history of steamboat transportation on Lake Minnetonka.

The first steamboat to provide transportation around the lake was a flat-bottom, side paddle-wheel craft named the "Governor Ramsey" (later re-named "Lady of the Lake" and "Minnetonka") launched in 1861. Various individuals built, launched and operated steamboats on the lake, providing transportation, charter and excursion services. The coming of the railroads created additional traffic for the boats as the tracks were built adjacent to the docks. One historian estimated that at one time over 90 steamboats operated on the lake.

In order to connect the Hotel St. Louis at Deephaven with the Minneapolis & St. Louis Ry. at Excelsior, W.D. Washburn had the "City of St. Louis" (many of the tourists came from there) constructed: this was a side paddle-wheel steam boat with an oak frame and pine superstructure; all of the wood came from the Washburn sawmills. It was 160' long, 40' wide, had a capacity of 1,000 persons, and was the first inland vessel in the U.S. to be lighted with electricity. Painted white with gold trim, bright and colorful scenes decorated the paddle-wheel boxes. Built in Indiana the boat was shipped to Wayzata, re-assembled and launched in 1881.

Not to be outdone, James J. Hill had the former river boat, "Phil Sheridan" (built in Cincinnati during 1866) transported in sections from LaCrosse and re-assembled at the lake. The boat was 285' long, had 30' diameter side paddle-wheels, was equipped with two 200 h.p. engines, and had a capacity of 2,500 persons. The superstructure also contained a dining room, restaurant and forty sleeping cabins. Painted white with red smokestacks and re-named "Belle of Minnetonka", it was launched July 3, 1882. This was the largest steamboat on inland waters but soon proved unsuited to the service in that steering was nearly impossible in the frequent rain squalls that swept the lake.

There was spirited competition among the many boats, the most celebrated rivalry being between the two largest, the "Belle of Minnetonka" and the "City of St. Louis". The run between Excelsior and Wayzata was between 5 and 6 miles, long enough so that the continued fervor of their racing resulted in many sets of burned-out smokestacks.

During 1880-1884 the Lake Minnetonka Navigation Co. had been formed and acquired most of the existing steamboats from the various independent owners and consolidated the services provided. The acquisitions consisted of the following boats.

"Belle of Minnetonka" (now seldom used except for large holiday crowds)

"City of St. Louis"

"Minneapolis" (capacity 200 persons)

"Lotus"

"Hattie May" (this was the first stern paddle-wheel steamboat on the Lake, launched about 1880; capacity 350 persons)

"Saucy Kate" (this steamer was 45' long, converted in 1877 from the tugboat "Kate" built in 1876, and re-named "Katie May". The boiler exploded June 23, 1877, and in 1878 the salvaged bow and stern sections were connected by a new longer center section resulting in the new name.)

Steamboats regularly left the various hotels to meet all incoming and departing trains at Wayzata, Minnetonka Beach, Spring Park (all on the Great Northern Ry.), and Solberg's Point, Excelsior and Tonka Bay (all on the Minneapolis & St. Louis Ry.). Complete excursion tours of the upper and lower lakes were made each morning and afternoon. By 1889 the "City of St. Louis", "Hattie May", and "Saucy Kate" were primarily used on these runs. This type of service continued through the 1890's and into the 1900's.

Captain John R. Johnson, a Norwegian immigrant, acquired the L. M. N. Co., including three docks, in 1896 and re-named it the Lake Minnetonka Transportation Co. The old boat fleet was subsequently disposed of: "Minneapolis", dismantled 1896; "Belle of Minnetonka", dismantled 1898; "Lotus", dismantled 1898; "City of St. Louis", dismantled winter 1898-1899; "Saucy Kate", burned at Solberg's Point September, 1899; and "Hattie May", re-named "Tonka", burned at Solberg's Point, 1900. A new boat fleet was gradually assembled which included the following passenger steamboats.

"Mayflower": a 70 ft. single deck, propellor-driven boat with a capacity of 150 persons, built in 1898 by George Godfrey.

"Priscilla": a barge designed for dancing parties built from the forward half of the hull of the "City of St. Louis".

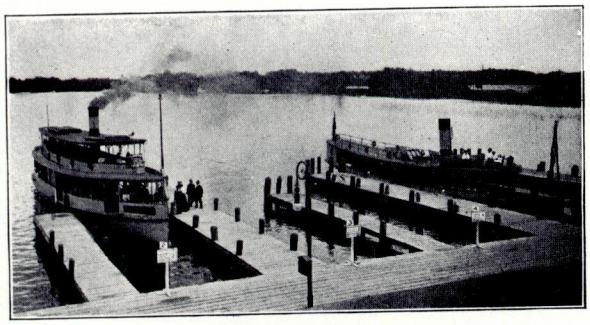
"Puritan": an 86 ft. double deck, propellor-driven boat with a capacity of 175 persons, designed by Andrew Peterson and built in 1901. It was also used to tow the "Priscilla."

"Plymouth": a double deck, propellor-driven boat with a capacity of 100 persons, built by Andrew Peterson in 1903.

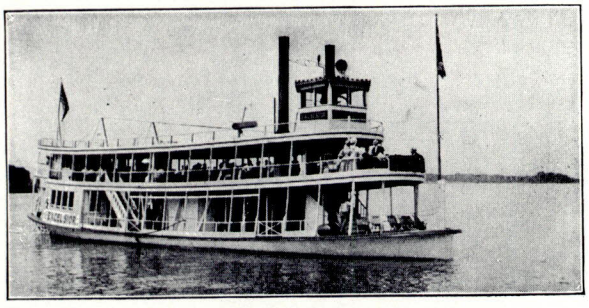
The 125 ft. stern paddle-wheel steamer "George", with a capacity of 225 persons, was built during 1900-1901 on the lake front at Water St., Excelsior, for Dr. George La Paul, owner of the La Paul House, Excelsior. Unsightly and cumbersome, she nearly capsized when launched May 25, 1901. Later rebuilt, it was re-named "Excelsior", and eventually came into the ownership of Frank Heywood, builder and owner of the Casino at Excelsior. Fitted with 1,000 electric lights and a searchlight, it was used primarily for evening moonlight excursions.

While the work of building the Lake Minnetonka railway line was in progress during 1905, TCRT was giving some thought to lake transportation and decided to place upon the lake a fleet of well-built, fast, safe boats which would be run on a regular schedule in connection with the electric streetcars. This was intended to be a new departure in Lake Minnetonka navigation as there had been no previous attempts to operate steamboats on the lake in regular public transportation service on an established schedule. Several of the remaining independently operated boats were acquired by the M. & St. P. Sub'n. Ry. during 1906:

"Mayflower", "Puritan", "Plymouth" and "Priscilla" from Capt. Johnson's Lake Minnetonka Transportation Co.; and the "Excelsior" (in December, 1906) from The Heywood Line.



Excursion Boats PURITAN and PLYMOUTH



Excursion Boat EXCELSIOR

Six express boats were built in the company shops during the winter of 1905-1906, then hauled out to the lake, and launched May 7, 1906. The boats were named after cities and resorts served by the company: "Como", "Minnehaha", "White Bear", "Hopkins", "Harriet" and "Stillwater". Every effort was made to give the boats the appearance of a standard electric streetcar as they were considered a continuation of the electric railway service. They were brilliantly lighted at night and equipped with electric searchlights drawing current from a small steam generator.

To provide transportation between Excelsior and Big Island Park, three double-end, side paddle-wheel, ferry boats were built during the winter of 1905-1906 on the lake near Deephaven. They were named "Minneapolis", "St. Paul" and "Minnetonka".

Thus 1906 was a very busy year at Lake Minnetonka; large terminal docks were built at Excelsior, the Excelsior Dock Station building completed, and smaller docks built at numerous points around the lake. To provide faster service for passengers destined for points on the Upper Lake, property was purchased at Wildhurst and a substantial boat dock constructed during early 1908; the loop track constructed off the Tonka Bay line allowed streetcar passengers to alight within a few feet of the dock.

Boats were operated from May 15th through September 30th and soon became the principal means of transportation between the various points on the lake. The fare was 10 cents between any two points on the same route, 20 cents round trip, and no transfers were issued. The crew of each boat consisted of three persons: the pilot, who "navigated" and steered; the engineer, who tended the boiler and driving machinery (a signal system linked the pilot and engineer, indicating start, stop, reverse and forward); and the purser, who collected the fares and tied the boat up to dock cleats when each landing was made. The purser also assisted passengers in boarding and alighting when the docks were slippery in wet weather or rough water caused the boat to pitch about. The boat yard was located at Excelsior east of the Dock Station and was eventually equipped with a slipway and hoist, and a shop building large enough to accommodate one boat on skids. The six express boats were used to provide hourly service on four routes on the lake. The three ferry boats were used exclusively to provide shuttle service between Excelsior Dock Station and Big Island Park. Three boats acquired from the Lake Minnetonka Transportation Co., "Excelsior", "Puritan", and "Plymouth" were classified as excursion boats, and as such made regular daily three-hour panoramic tours of the lake, charging a round trip fare of 25 cents. Apparently all boats were open to charters or special excursion parties for day or night trips. The "Mayflower" being of small capacity, was probably used only for charters and special excursion parties.

Four express boat routes were established in 1906, all operated from the Excelsior Docks. Route 1, the Zumbra Heights Express, stopped at Narrows, Birch Bluff, Edgewood, Shady Isle, Woodside, and Zumbra Heights. Route 2, the Spring Park Express, stopped at Narrows, Casco, Isle View and Spring Park. Route 3, the Minnetonka Beach Express, made stops at Tonka Bay, Wheeler's-Big Island, Minnetonka Beach, and Lafayette Club-Arcola. Route 4, the Deephaven Express, made stops at Meadville, Fairview, Linwood, Summerville, Cottagewood, and Deephaven Terminal. By the 1907 season, Route 4 had been extended to Wayzata, with added stops at Crown Point (on Big Island), Breezy Point, and Wayzata. Route 3 was shown as stopping at Tonka Bay, Wheeler's, Arcola and Minnetonka Beach, in that order. The earliest timetable available is one effective May 30, 1908, at which time the newly-constructed ter-

minal dock at Wildhurst was placed in service. This was the situation:

Big Island Park Ferries

Excelsior 0.00 miles Big Island Park 2.06 miles

Hourly service was provided on weekdays and half-hour service on Sundays. The round trip required 45 minutes at a 10 cents fare (or covered by transfer issued on the streetcar). On weekends approximately 15,000 persons daily were carried on the ferry boats. Running time was 20 minutes one way.

Lower Lake Division

Excelsior-Deephaven-Wayzata line — hourly service

Docks	Miles
Excelsior (public)	0.00
Meadville (private)	0.46
Fairview (private)	1.41
Linwood (private)	1.95
Summerville (private)	2.85
Cottagewood (private)	3.52
Deephaven (public)	3.99
Breezy Point (Maple Woods) (private)	6.06
Wayzata (public)	7.16

Boat runs 1 and 2 were assigned to this line; layover time was taken at Wayzata. Running time was 50 minutes.

Excelsior-Minnetonka Beach line — hourly service

Docks	Miles
Excelsior (public)	0.00
Tonka Bay (public)	1.10
Wheeler's (Oakwood) (private)	1.85
Arcola (private)	2.72
Minnetonka Beach (public)	3.22

Boat run 3 was assigned to this line; layover time was taken at Minnetonka Beach. Running time was 18 minutes outbound and 22 minutes inbound.

Upper Lake Division

Wildhurst-Spring Park line — hourly service

Docks	Miles
Wildhurst (public)	0.00
Casco (private)	0.75
Isle View (private)	1.88
Spring Park (public)	2.78
Woolnough (private)	3.38

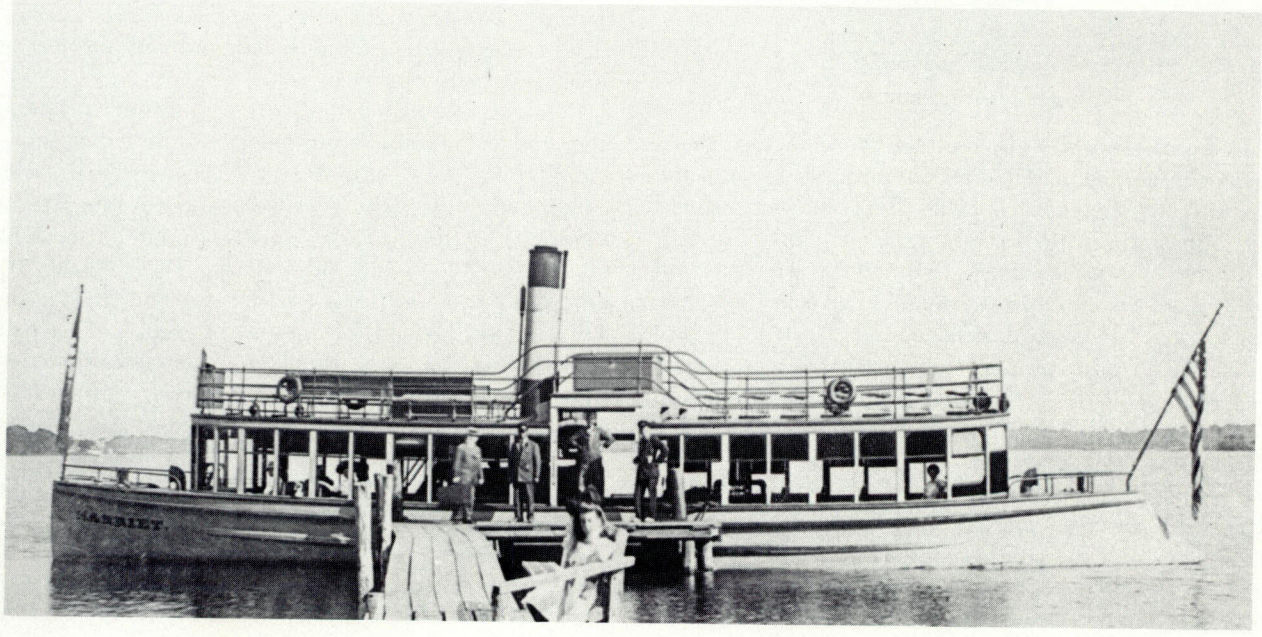
Boat run 4 was assigned to this line; layover time was taken at Woolnough. Running time was 21 minutes.

Wildhurst-Zumbra Heights-Mound line — two-hourly service

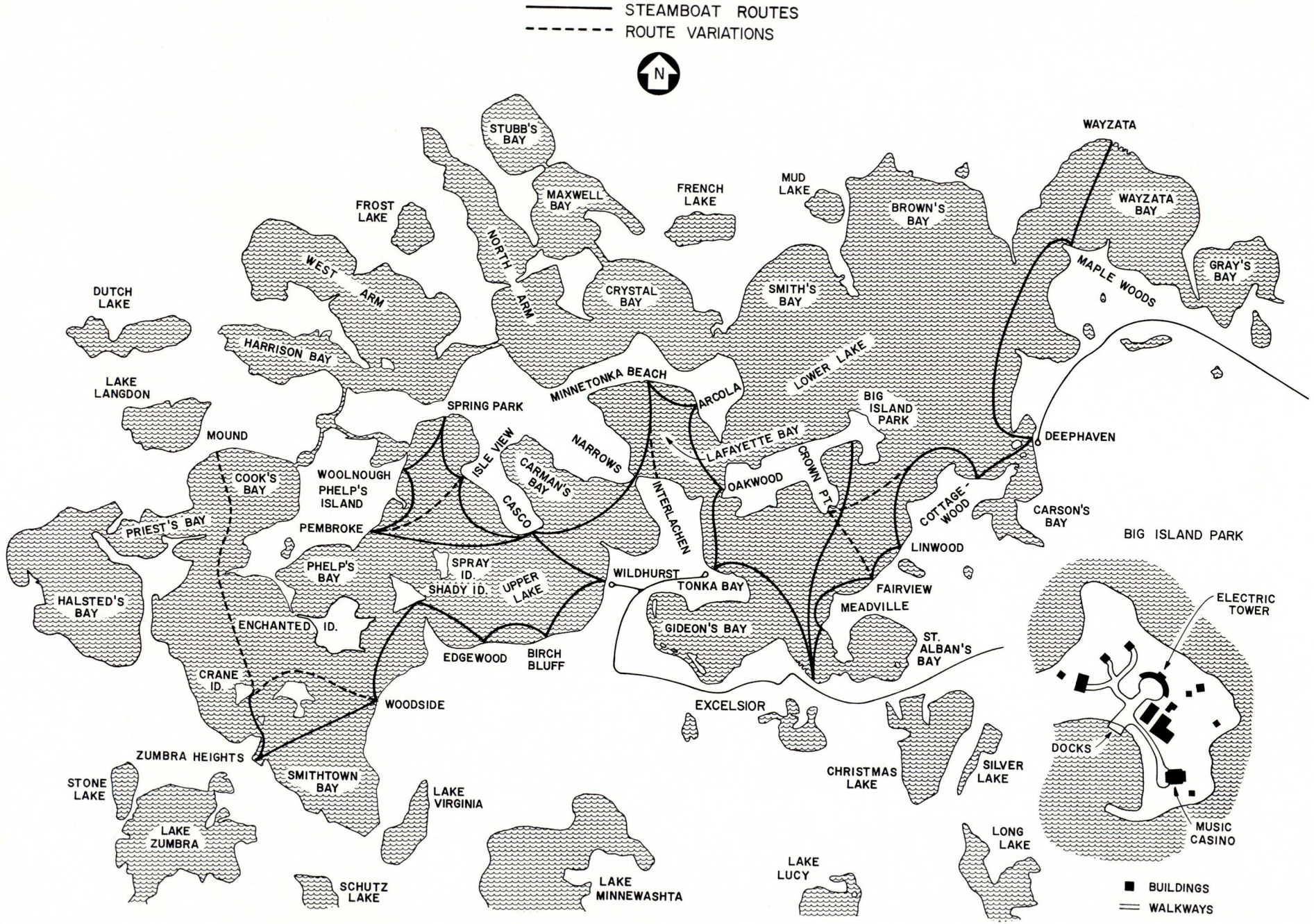
Docks	Miles
Wildhurst (public)	0.00
Edgewood (private)	1.50
Shady Isle (private)	2.20
Woodside (private)	3.08
Zumbra Heights (private)	4.48
Crane Island (private)	5.11
Mound (public)	7.61

Boat run 5 was assigned to this line; layover time was taken at Mound. Boat run 6 made 1 or 2 direct runs from Excelsior to Mound in the morning rush hour only. Running time was 42 minutes outbound and 43 minutes inbound.

Express boat "Harriet" stopped at a dock on Lake Minnetonka. (Joe Hutchinson collection)



MINNETONKA & WHITE BEAR NAVIGATION CO.



Many of these docks were located at the smaller resort hotels and resorts on the lake. At private docks, picnic parties and the public were generally not permitted to land. There was no service through The Narrows, which connects the Upper Lake and Lower Lake; but boats were deadheaded through there to and from the Excelsior boat yard. A company map dated 1908 however showed the following: a line direct from Excelsior through The Narrows to Wildhurst and Casco; a line branching off between Edgewood and Woodside around the southwest side of Enchanted Island direct to Mound; a line branching off at Linwood to the east shore of Big Island Park and from there to Summerville; and omission of the line between Spring Park and Woolnough.

The 1909 company map showed the following changes: no line through The Narrows; line extended from Minnetonka Beach to Interlachen; line extended from Spring Park to Woolnough; and the line to Mound came directly from Crane Island.

The timetable effective May 15, 1909, did not indicate any service between Crane Island and Mound. Mound was served by railroad commuter service on the Great Northern Ry. which affected the boat patronage. This timetable also indicates that baggage service was provided daily except Sunday, with two round trips, one in the morning and one in the afternoon, between: Excelsior and Wayzata, Excelsior and Minnetonka Beach, Wildhurst and Woolnough, and Wildhurst and Zumbra Heights.

The timetable effective September 6, 1909, indicates the following changes: Birch Bluff (private dock) stop added (1.00 miles from Wildhurst) on the Wildhurst-Zumbra Heights line; and Summerville (private dock) removed as a stop on the Excelsior-Wayzata line.

Boat runs 1 and 2 were assigned to the Excelsior-Wayzata line, run 3 to the Excelsior-Minnetonka Beach line (Interlachen was served with only four trips per day), and runs 4 and 5 to the Wildhurst-Spring Park/Wildhurst Zumbra Heights lines. (Each run made alternate trips on each line; Crane Island was served with only three trips per day.)

No service was indicated on the map or the timetable to the east shore of Big Island Park.

The timetable effective May 28, 1910, indicated that the express boats would provide additional service to and from Big Island Park. The last regular trip of each boat run Sunday evening stopped at Big Island Park before pulling into Excelsior. Then at 10:00 P.M., Sundays only, the express boats left the Park to receive or discharge passengers at various express boat docks on the lake.

When Big Island Park was closed permanently August 28, 1911, all ferry boat and excursion boat service was discontinued. The express boat runs were changed slightly to provide limited service to Big Island and Mound: Runs 1 and 2 were assigned to the Excelsior-Deephaven-Wayzata line; Run 3 was assigned to the Excelsior-Minnetonka Beach line plus making two round trips, Excelsior — Big Island — Spring Park — Mound; Run 4 was assigned to the Wildhurst-Spring Park line plus making two round trips, Excelsior — Big Island — Spring Park — Mound; and Run 5 was assigned to the Wildhurst-Zumbra Heights-Crane Island line.

The 1912 timetable and maps indicated further changes — the stops on the four lines were:

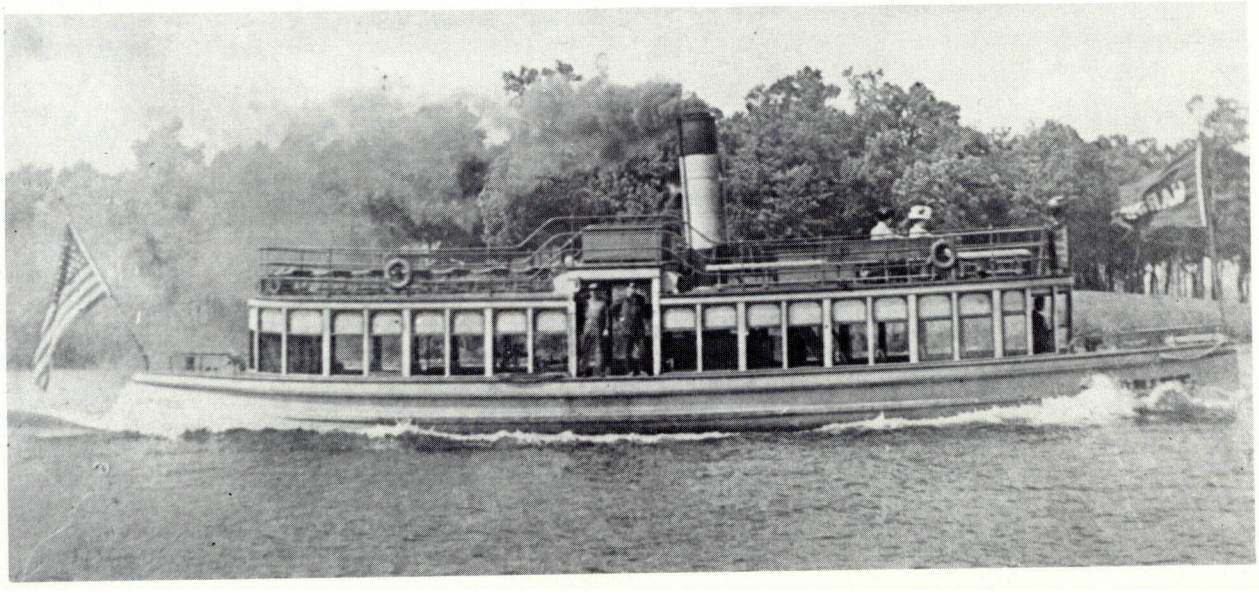
Excelsior — Meadville — Fairview — Linwood — Cottagewood — Deephaven — Maple Woods — Wayzata.

Excelsior — Tonka Bay — Wheeler's — Arcola — Minnetonka Beach — Casco — Wildhurst (first regular service through The Narrows).

Wildhurst — Casco — Isle View — Spring Park.

Wildhurst — Birch Bluff — Edgewood — Shady Island — Woodside — Zumbra Heights — Crane Island (only 3 round trips per day to Crane Island — all other trips ended at Zumbra Heights.)

No service was operated to Big Island or Mound. A system of colored signs was used on the express boats and at the Excelsior Dock Station to identify the destinations: white signs with blue letters were used to signify destinations in the direction from Zumbra Heights to Wayzata; yellow signs with black letters in the direction from Wayzata to Zumbra Heights.

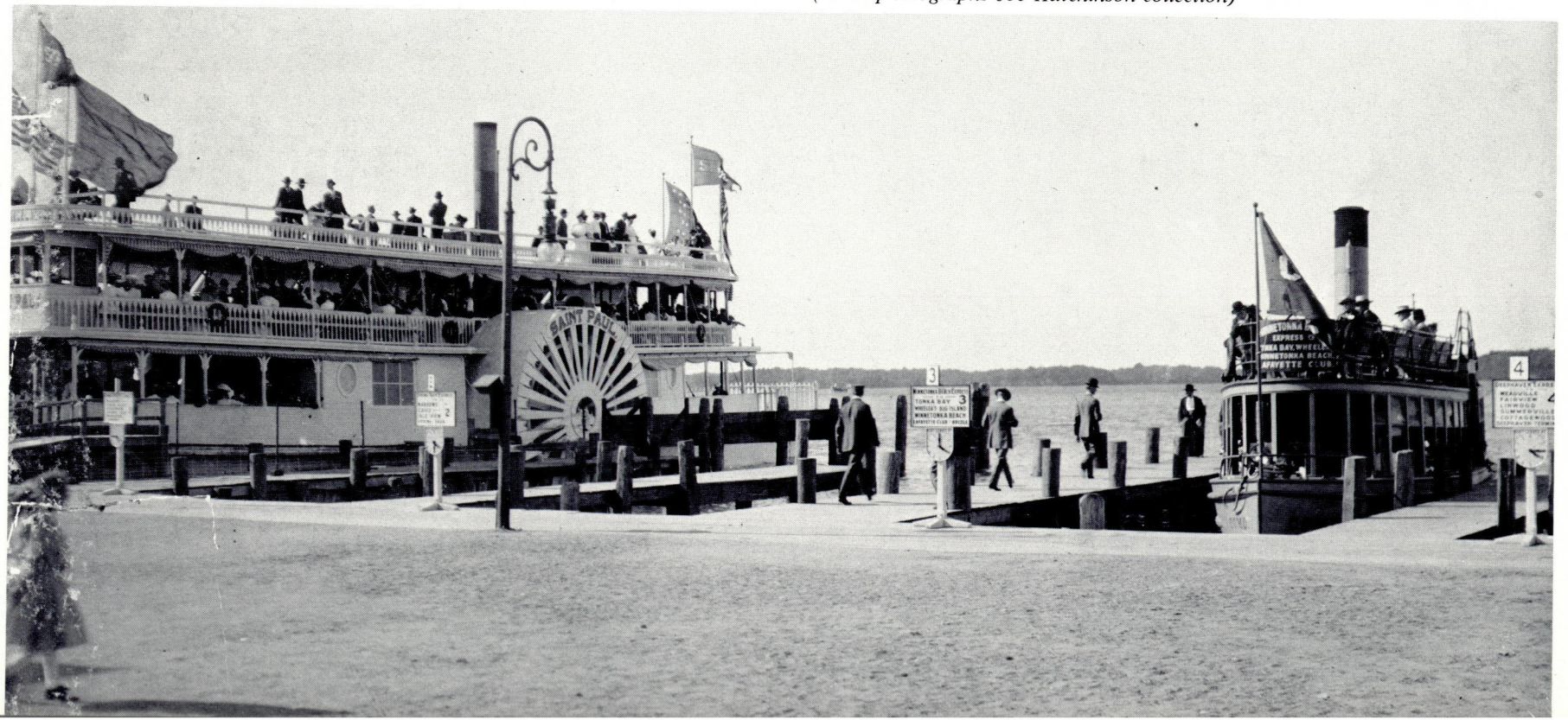


Below: A view of the Excelsior Docks in 1906 from the Dock Station showing the ferry boat "St. Paul" and the express boat "Como". Note the route information signs at each dock, each with a clock that could be manually set to indicate the departure time of the next boat run. (Sweet Studios)

Facing Page: Express boat "Harriet" under way with the engineer and purser standing in the entrance.

Above: Two views of the Excelsior Docks and Dock Station showing the ferry boats; the left photo was taken from the right-of-way, while the right photo was taken from the Blue Line docks (the steamer "Puritan" can be seen to the right of the ferry boats).

(Three photographs Joe Hutchinson collection)



The timetable effective May 15, 1913, contained several interesting changes. The Wildhurst-Spring Park line was extended from Woolnough to Isle View. The Excelsior-Wayzata line was modified to provide four round trips per day to Crown Point on Big Island; the route ran from Fairview to Crown Point to Deephaven. For the first time the schedule was arranged as if the four lines were operated as one line:

Dock	Miles	Typical Run
Crane Island	0.00	7:33 A.M.
Zumbra Heights	0.55	7:38
Woodside	1.80	7:46
Shady Island	2.68	7:49
Edgewood	3.28	7:53
Birch Bluff	3.88	7:58
Wildhurst	4.88	8:03
Casco	5.63	8:09
Isle View	6.63	8:14
Spring Park	7.38	8:19 to 8:24
Woolnough	7.98	8:27
Isle View	8.54	8:29
Casco	9.54	8:34
Narrows	10.54	8:42
Minnetonka Beach	11.39	8:49
Arcola	11.89	8:52
Wheeler's	12.69	8:56
Tonka Bay	13.47	9:01
Excelsior	14.82	9:11 to 9:15
Meadville	15.46	9:18
Fairview	16.16	9:23
Linwood	16.76	9:27
Cottagewood	18.39	9:38
Deephaven	18.86	9:42 to 9:45
Breezy Point	20.93	9:58
Wayzata	21.80	10:05

Schedule speed ranged from 9 to 11 m.p.h.

During 1914 additional extensions were made: Woolnough-Pembroke-Isle View, Pembroke-Casco, and Woodside-north side of Wawatasso Island-Crane Island. The operation over these extensions is best explained by the mileage table contained in the 1915 schedules:

Dock	Miles
Wayzata	0.00
Maple Woods	0.87
Deephaven	2.94
Cottagewood	3.41
Linwood	5.04
Fairview	5.64
Meadville	6.34
Excelsior	6.98
Tonka Bay	8.33
Oakwood	9.11
Arcola	9.91
Minnetonka Beach	10.41
Narrows	11.26
Casco	12.26
Pembroke	14.24
Woolnough	14.92
Spring Park	15.52
Isle View	16.27
Casco	17.27
Wildhurst	18.02
Birch Bluff	19.02
Edgewood	19.62
Shady Island	20.22
Woodside	21.10
Enchanted Island	21.85
Crane Island	22.45
Zumbra Heights	23.05

The 1915 timetable also listed which boats were assigned to the various runs:

Run 1	"Harriet"
Run 2	"Como"
Run 3	"Minnehaha"
Run 4	"Stillwater"
Run 5	"Hopkins"
Run 6	"White Bear"
—	"Excelsior" (newly completed express boat)

Schedules were revised as patronage began a steady decline in the early 1920's. The routes and dock locations remained unchanged until 1924 when several landings were eliminated and the four routes consolidated into two routes. By 1925 traffic had fallen off so drastically that three of the express boats were no longer needed and were scuttled by sinking. The company's annual report for 1926 stated that with the construction of additional improved roads and increased use of private automobiles and launches, steamboat patronage fell off to an alarming degree; operations were opened in the summer of 1926 but so little business resulted that service was discontinued after six weeks. Whether charter service continued was not recorded. One express boat was sold in September, 1927, and the last three express boats scrapped in April, 1928.

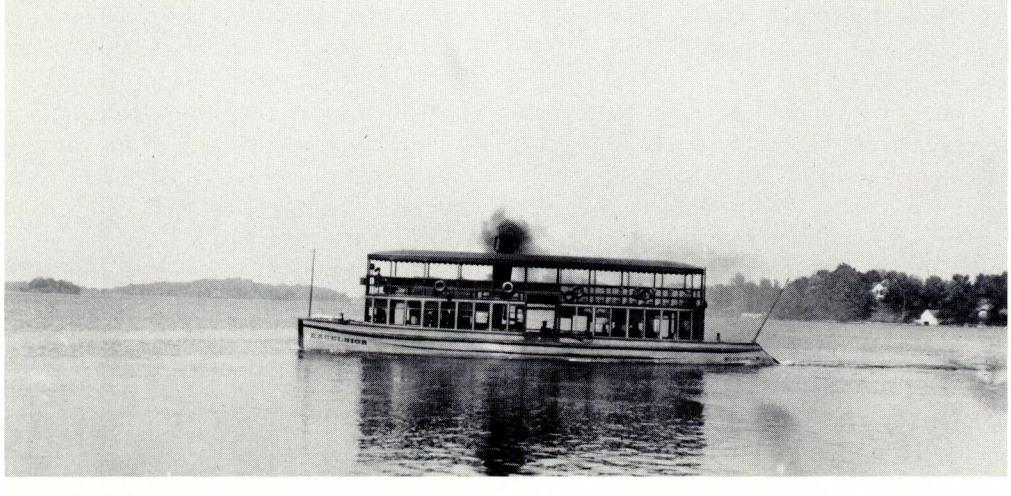
The "Hopkins" had been sold to The Blue Line, owned by Joseph DuGuise and George B. Hopkins. It was repainted white, re-named "Minnetonka III", and used solely for charter service. At a later date the steam boiler and engine was replaced with a diesel engine. This sole survivor of the once great Lake Minnetonka steamboat fleet operated on the lake until 1949, when, its usefulness outlived, it was scuttled by sinking in the same location as its three sisters.

The last remaining traces of TCRT's influence at Lake Minnetonka, outside of abandoned roadbed, are few. A veterans camp was established in 1920 on Big Island at the old park site, and the original well still supplies water to this day. The Excelsior Dock Station houses the "dodgem cars" ride at Excelsior Amusement Park.

Above: Express boats "Harriet" and "Como" at the Wildhurst Dock. (Joe Hutchinson collection)

Right: Express boat "Stillwater" making a landing at a dock on The Narrows which connects the Upper and Lower Lakes. (Sweet Studios)

Below: Express boat "Excelsior" shortly after its completion in 1915. (Russell Olson collection)



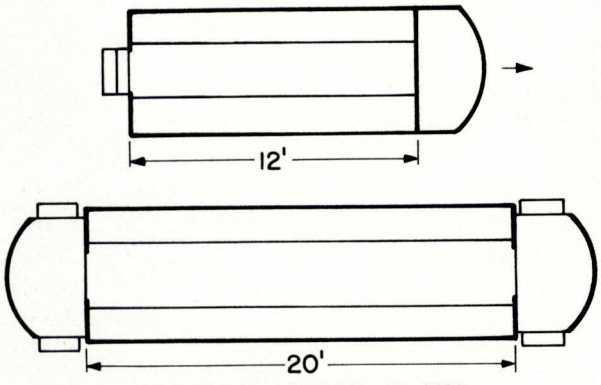
6. EQUIPMENT

Horsecars

General Information

The early designs of horsecars were of the closed body type with longitudinal seats provided along each side; due to the limitations of animal power extremely light construction was employed. The one-horse, one-man "bobtail" car was the first development for purely city service. The bodies of this type of car were usually 10 ft. or 12 ft. long, single-ended, with a platform for the driver at the front end and passengers entering at the rear end; sometimes a full platform was installed at the rear, but more often only a step leading to a rear entrance door was supplied, thus the term "bobtail".

With the growth of street railway business, increased car capacity was needed. This led to the construction of cars of 16, 18 and 20 ft. body length, usually drawn by two horses. In some cases these cars were handled by the driver alone, but more frequently they were arranged for two-man operation. Often these large cars were equipped with full platforms at both front and rear ends and could be quickly reversed at terminals by walking the team around to the opposite end of the car. Closed cars were the most common type; however, open cars were developed fitted with transverse benches running the full width of the car with full length running boards on each side for boarding and alighting.



HORSECAR FLOOR PLANS

Minneapolis St. Ry.

The first line which began operating in 1875 used two horsecars; one source stated that these were the two abandoned cars from the 1873 attempt which had been rehabilitated. Another source reported that six cars were acquired second-hand from New York. By December 31, 1875, ten horsecars were owned. These original horsecars measured ten feet between bulkheads, had 4 light wheels and weighed about 1000 lbs.; the body had a turtleback roof, "bobtail" rear end, and two longitudinal seats seating 14 persons total. The driver was exposed to the weather on the open front platform from which he guided a single horse. Interior illumination was by oil lamp; a small sheet iron stove in the middle of the car supplied heat supplemented by a foot thick layer of hay on the car floor. A small bell on the horse's collar signaled the car's approach. At night bulls-eye colored signal lamps were placed on both ends of the car. Cars of each line were painted a distinctive color and were used only on that particular line; the "University" line (the first line) cars were blue, while the "Washington Ave." line cars were yellow.

As the horsecars were operated by one man, passengers had to struggle all the way to the front of the car to deposit fares in a money box next to the driver. In 1884 an inventor by the name of Small devised an "automatic" fare collector that obviated collection difficulties. An inclined brass channel, called a "conveyor", ran forward from the rear of the car to the fare box. The passenger deposited his nickel into the conveyor at the rear end of the car and the nickel rolled down the inclined conveyor into the fare box. At night the fare box was illuminated by an oil lamp.

By 1878 eighteen horsecars were being operated. As of 1880, the company owned 21 horsecars, 90 horses and employed 35 persons.

New horsecars were being unloaded May 27, 1881, in the C. M. & St. P. R.R. yards, lettered "Western Ave. & Broadway St. N.E.".

A group of 16 ft. closed cars were ordered from Pullman's Palace Car Co. August 16, 1886. Photographs and company records indicate numbers ranging from 179 to 195 although there were probably more cars than this in the order. These were considered substantial, well built cars.

During October, 1887, conductors were first used on a few lines as the larger new cars which had been ordered were received and placed in service.

Substantial car orders were placed during 1888 as follows:

? cars, at least 202-232, ordered from Pullman's Palace Car Co. July 11th: single truck, 24 ft., 8 bench open horse cars.

30 cars, 233-262, ordered from J.M. Jones' Sons Car Co. June 7th: single truck, 24 ft. open horse cars.

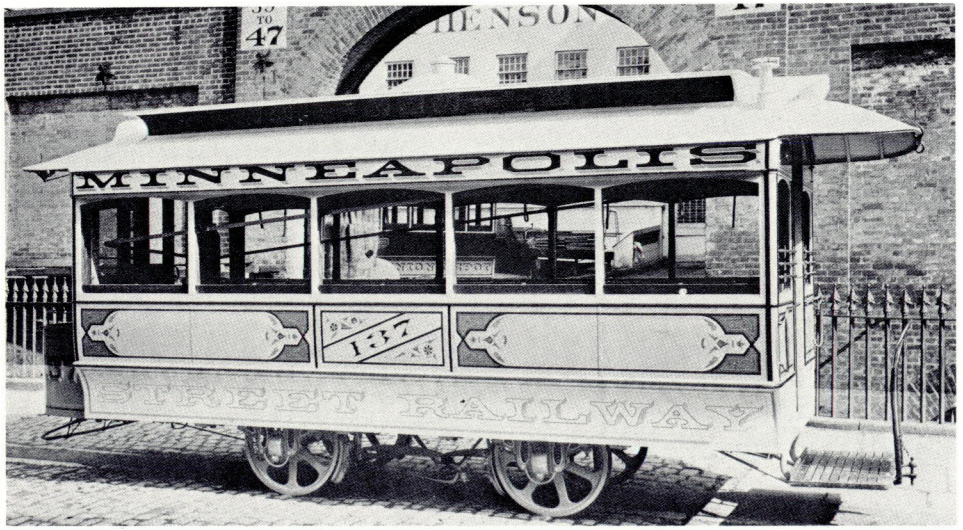
40 cars, 263-302, ordered from J.M. Jones' Sons Car Co.: single truck, 16 ft. closed horse cars.

Whether these car orders were due to equipment modernization programs, increased service, conversion from narrow gauge to standard gauge track (reportedly undertaken beginning in 1888), or a combination of these reasons, is not known.

Various periodicals containing directories provide limited data concerning the last years of horse car operation.

MSR horsecar 37 with rear platform. (TCRT; George Obermeyer collection)

MSR "bobtail" horsecar 132, John Stephenson Co. builder, on the "Washington and Cedar Av's" line about 1885. (James Foster collection)



MSR horsecar 137, John Stephenson Co. builder, taken at the builder's factory about 1885 or early 1886. (TCRT)

MSR open horsecar 208, Pullman's Palace Car Co. builder, 1888, on the curve at Riverside and 24th Avenues So. (Alice M. Eide collection)

Year	Horse Cars	Horses
1888	186	?
1889	218	1018
1890	252	?
1890 U.S. Census	264	1073

In June, 1891, MSR was offering for sale 63 12 ft. closed horse cars. A subsequent advertisement in an 1891 issue of the Street Railway Journal still offered for sale: 62 12 ft. closed horse cars all fitted with "Slawson" fare boxes and "Small" conveyors.

It was reported that some cars were sold to Helena and Billings, Montana; Duluth, Minn., and La Crosse, Wisc.; it was also reported that numerous western cities acquired old Minneapolis and St. Paul horse cars. Horse car #1 was still in existence as an historical relic in 1891 but its subsequent disposition is unrecorded.

St. Paul St. Ry.

The first horsecar operation during 1872 consisted of four horsecars and eight horses. #1 was a 10 ft. closed car, later kept as an historical relic until it was destroyed in the storage shed fire at the Snelling Shops in 1925.

By August, 1874, eight cars were owned. New cars arrived in May, 1875, to bring the total to 15.

St. Paul City Ry.

As of October, 1878, when SPCR formally took over the property, 15 horsecars were owned. New horsecars were purchased during 1880.

Billings St. R.R., Montana, acquired two horse cars from the SPCR during 1882, and Duluth St. Ry. acquired one horse car in November, 1882. An 1882 directory reported that SPCR owned 28 horsecars. Duluth St. Ry. acquired two additional horsecars from SPCR in the spring of 1883.

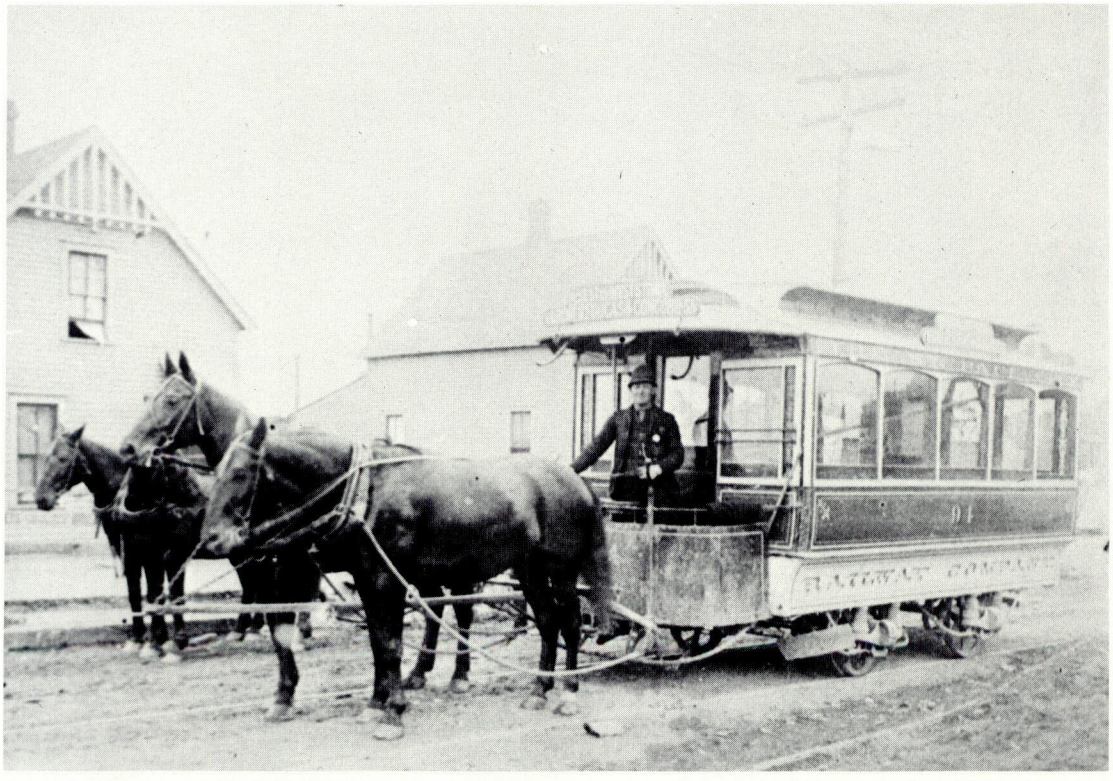
In December, 1883, 12 new cars were received for the "St. Anthony Hill" line. It appears that an order of 14 ft. closed cars was acquired from the John Stephenson Co. about this time; photographs indicate numbers ranging from 94 to 130. An order for 25 14 ft. closed cars was placed with Brownell & Wight, St. Louis, Mo., dated February 1, 1884, numbered from 131 upward.

Duluth St. Ry. acquired 12 horsecars in April, 1886, and three more in May, 1888, presumably from SPCR. The Smith Ave. barn on Oak St. was damaged by fire February 11, 1886; 25 cars "including snow plows, employes' cars and tool cars" were in the building at the time.

Thomas Lowry reported in September, 1887, that 84 cars were owned and that orders had been placed to bring the total to 150.

Various periodicals containing directories provide limited data during the cable car period and the conversion to electricity.

Year	Horse Cars	Horses
1888	128	?
1889	159	900



SPCR "bobtail" horsecar 94. The destination sign reads "Rice St. & West St. Paul" "via Robert-Ducas & Concord Sts.". (James Foster collection)

1890	108	?
1890 U.S. Census	113	742

Some of the horsecars were later used as trailers for the cable grip cars. In December, 1891, the horsecar barn at W. 7th St. and Lee St. was destroyed by fire along with 23 out-of-service horse cars.

Cable Cars

St. Paul City Ry.

During September, 1887, 20 new cars for the "Selby Avenue" cable line had arrived. Contemporary reports state that the equipment consisted of 12 grip cars and 16 trailers. Normal operation consisted of 1 grip car pulling 1 trailer. No company records exist as to this equipment. Photographs indicate that the initial grip cars were of two types. 12 ft., 4 bench, open, deck roof cars; and 18 ft., 6 bench, open, deck roof cars.

Probably all were built by LaClede Car Co. The trailers seem to have been converted from the 14 ft. closed horse cars built by Brownell & Wight in 1884. On January 27, 1888, a gripman on an eastbound train lost the grip descending Selby Hill, causing a derailment which destroyed the grip car, killed one passenger and injured several others.

In December, 1888, a contract award was reported for 60 new cars for the "E. 7th St." cable line to the LaClede Car Co. Twenty grip cars and 20 open trailers were to be delivered by May 15, 1889, and 20 closed trailers by September 1, 1889. No company records exist on the grip cars, and those on the trailers are incomplete.

? cars, ? - ?, ordered from LaClede Car Co., 1888: 18 ft., 6 bench, open, railroad roof, cable grip cars.

? cars, at least 200-216, ordered from LaClede Car Co., Sept. 1, 1888: single truck, 25 ft., 8 bench open, deck roof, cable trailers.

19 cars, 217-235, ordered from LaClede Car Co., December 20, 1888, single truck, 25 ft., 8 bench open, railroad roof, cable trailers.

? cars, at least 303-316, ordered from LaClede Car Co. December 20, 1888: single truck, 16 ft. closed cable trailers.

Apparently due to the common ownership and management, it was decided to number all new open cars in the St. Paul City Ry. number series, and all new closed cars in the Mpls. St. Ry. number series, the latter company's most recent order of cars being numbered 263-302.

A local periodical dated September, 1889, reported that 20 closed cars had been ordered from LaClede Car Co. These were probably the following cars.

10 cars, 236-245, LaClede Car. Co., April 1, 1890 (236-238) and August, 1890 (239-245): single truck, 25 ft. open cable trailers.

10 cars, 318-327, LaClede Car Co., August 20, 1890: single truck, 16 ft. closed, railroad roof, cable trailers.

Meanwhile, the first electric line in St. Paul was opened February 22, 1890. A photograph of the first "train" indicates that it consisted of #169 motor car (a converted 18 ft., 6 bench open, cable grip car) and #136 trailer (former cable trailer, ex-horse car). The 1890 U.S. Census listed 9 electric motor cars and 9 trailer cars, so apparently 9 of the original cable grip cars were converted to electric motor cars, all of which were 18 ft., 6 bench open cars.

We have not located any additional information as to additional orders for cable grip cars. The 1890 U.S. Census lists 30 cable grip cars and 66 cable trailers. The January 18, 1893 consultant's report lists the following equipment:

18 ft., single truck, open cable grip cars	38 cars
16 ft., single truck, closed cable trailers	34 cars
25 ft., single truck, open cable trailers	32 cars
Total cable equipment	104 cars

On September 1, 1893, the E. 7th St. cable line was converted to electric operation, thus creating a surplus of cable grip cars.

During 1894 and 1895, in compliance with the state's "vestibule" law, those cable grip cars in active service were equipped with enclosures for the grip man to protect him from the weather. This consisted of an enclosure in the center of the car, with glass windows on all sides above the seat backs and a narrow door at the rear.

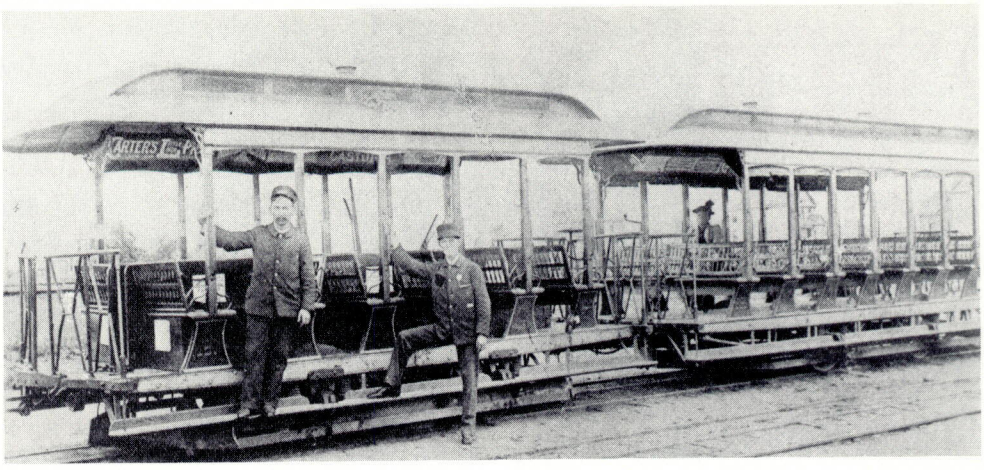
It is possible that many of the cable grip cars were stored in the old horse car barn at University Ave. and Kent St. which was destroyed by fire in 1895 or 1896.

The Selby Ave. cable line ceased running June 3, 1898, to permit conversion of the line to electric operation with construction of a counterweight operation on Selby Hill. Three of the railroad roof cable cars, whether grip cars or trailers is not known (TCRT records carry a building date of 1890), were rebuilt for operation of the counterweight system. This included equipping them with a grip blade and converting them to electric operation with one Peckham 7B truck, 2 T.H. WP 50 motors, and a rheostat controller.

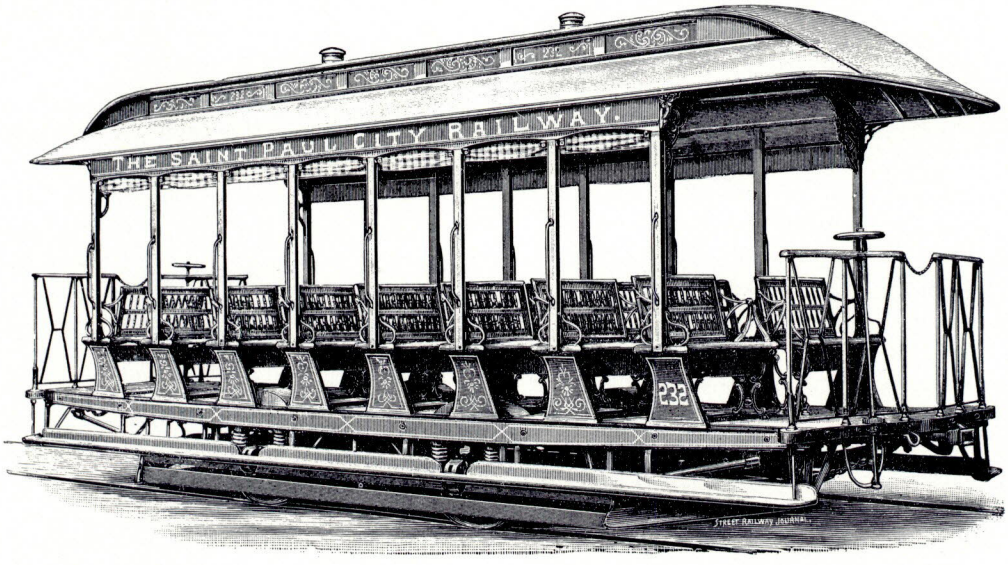
No other information exists as to the disposition of the cable grip cars. All were gone by the time of the company survey taken September 1, 1904. The cable trailers were subsequently used as trailers for the electric motor cars. The three cars used on the Selby Hill counterweight became surplus in 1907 when the counterweight was replaced by the Selby Tunnel; they were taken to the Snelling Shops and used to shift cars and trucks around the shops; as such they were re-numbered 26-28.

A four-bench open cable grip car with open trailer 207 westbound on Selby Ave., St. Paul, having just crossed Summit Ave. The mansion on the right was the residence of Norman W. Kittson and is now the site of the St. Paul Cathedral. Probably taken about 1888-1889. (Minnesota Historical Society collection)

Right: A six-bench open cable grip car with eight-bench open trailer, both built by the LaClede Car Co., on the "Selby Ave." line, St. Paul, about 1894. (Edwin H. Nelson collection)



Below: St. Paul City Ry. cable trailer 232, an engraving which appeared in a Street Railway Journal advertisement of the LaClede Car Co. during 1891. (TCRT)



Original Electric Cars
Minneapolis St. Ry. 1890-1892

The first electric cars were ten 16 ft. closed horsecar bodies of the Pullman 1886 order, placed on single electric motor trucks, each containing two 15 h.p. motors. Other cars from this same order were used as trailers. The first "train" over the "4th Ave. So." line consisted of 188 motor car pulling 190 trailer.

Next, all forty 16 ft. closed horsecar bodies of the Jones 1888 order, 263-302, were placed on single electric motor trucks.

The first order of new cars was placed with LaClede Car Co. in early 1890.

60 cars, 303-362, LaClede Car Co., December 9, 1890: 24 ft., single truck, open motor cars. Note that these numbers follow the previous order of horse cars thus creating a duplication with St. Paul City Ry. closed cable trailers.

60 cars, 363-422, LaClede Car Co., February 20, 1891: 18 ft., single truck, closed motor cars.

Subsequent car orders and developments are listed in chronological order.

1891

20 cars, 423-442, Robinson & Moan Car Co., March 3, 1891: 24 ft., single truck, open motor cars.

2 cars, ? - ?, built during the spring of 1891 in the 3rd Ave. No. shops: single truck, sprinkler trailers. Each was equipped with a rectangular 6' x 12' boiler-iron tank with a capacity of 90 barrels of water. These cars were to be pulled by passenger motor cars and used to control the dust between the car tracks, but they were never used.

36 cars, 503-538, Northern Car Co. July 30, 1891: 18 ft., single truck, closed motor cars. They were ordered in two groups: 503-522 and 523-538, although records list the foregoing date for both groups.

60 cars, 443-502, J.M. Jones' Sons Co. August 4, 1891: 18 ft., single truck, closed motor cars. These were assigned to the Washington Ave., 1st Ave. So., and Hennepin Ave. lines.

1 car, 1, built during December, 1891, in the 3rd Ave. No. shops: a 24 ft., single truck, supply car, equipped with two Thomson-Houston SRG 30 motors. Body design details were: flat arch roof, open platforms, very wide; end doors the full width of the car (on each end), rails laid

on the car floor full length to accommodate wheel and axle sets, portable inclined approach ramps (the brake staff folded out of the way), moveable armature rack, and shelving on both interior sides.

A magazine article dated July, 1891, reported that MSR had 110 cars equipped with Edison motors: 40 sets on Jones 16 ft. cars (263-302), 60 sets on LaClede 18 ft. cars (363-422) and 10 sets on LaClede open cars (303-362 series).

One single truck, closed motor car was destroyed by fire in April because of a faulty roof insulator.

The motors were removed from 423-442 in December, 1891, and placed in 503-522. Thereafter cars 423-442 were always used as open trailers.

During December, 1891, car 284 was experimentally rebuilt in the 3rd Ave. No. shops. The 16 ft. five-window body was cut in two and 6 ft. of new car body spliced into the gap to produce a 22 ft. eight-window body; overall length was approximately 30 ft. This car had two Thomson-Houston 15 h.p. motors, plate glass mirrors on each interior end, interior painted blue and gold with upholstered seats in warm crimson, and two brass chandeliers with three incandescent globes in each. The rebuilt car proved satisfactory and MSR announced that the other 39 cars in the series (263-302) would be similarly rebuilt.

1892

A February magazine article reported that Northern Car Co. was to rebuild 30 Jones "bobtails" to 30 ft. length (over-all). Apparently the fire at Northern Car Co. in May occurred before this work was started; instead MSR did the rebuilding in its 3rd Ave. No. shops. These cars were all from the 263-302 series and as rebuilt were used on the 1st Ave. S. and North Side lines. All rebuilt cars, except the previously rebuilt 284, were re-numbered into the current series:

38 cars, 569-606, July 1, 1892.

The first double truck car to operate in the Twin Cities was one built by Northern Car Co. for the Northwest Thomson-Houston Co. who wished to demonstrate to TCRT officials the advantages of such cars. This was a 35 ft. vestibuled, closed motor car with railroad roof, seating 40 persons, and equipped with two maximum traction trucks and two Thomson-Houston W.P. 50 (25 h.p.) motors. Test trips were operated over the "Interurban" line in early 1892. (Northern Car Co. built five identical cars for the Riverside Park Line at Sioux City, Iowa.) The car eventually became the property of MSR and was used in regular service, but its number is unknown.

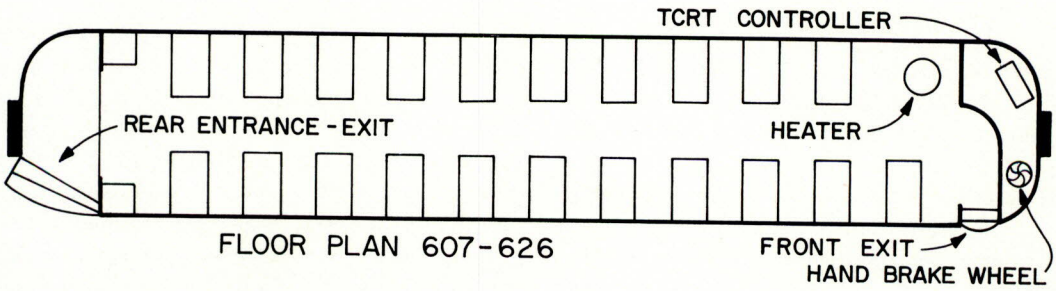
Thirty double truck, open motor cars were ordered from Northern Car Co.; sixteen cars were to be new (539-554), and fourteen (555-568) old "Motor Line" cars repaired and repainted. They were intended for summer use on the "Interurban" and "Lake Harriet" lines in Minneapolis. The Northern Car Co. plant was destroyed by fire May 7, 1892, along with "a number of unfinished cars for St. Paul."

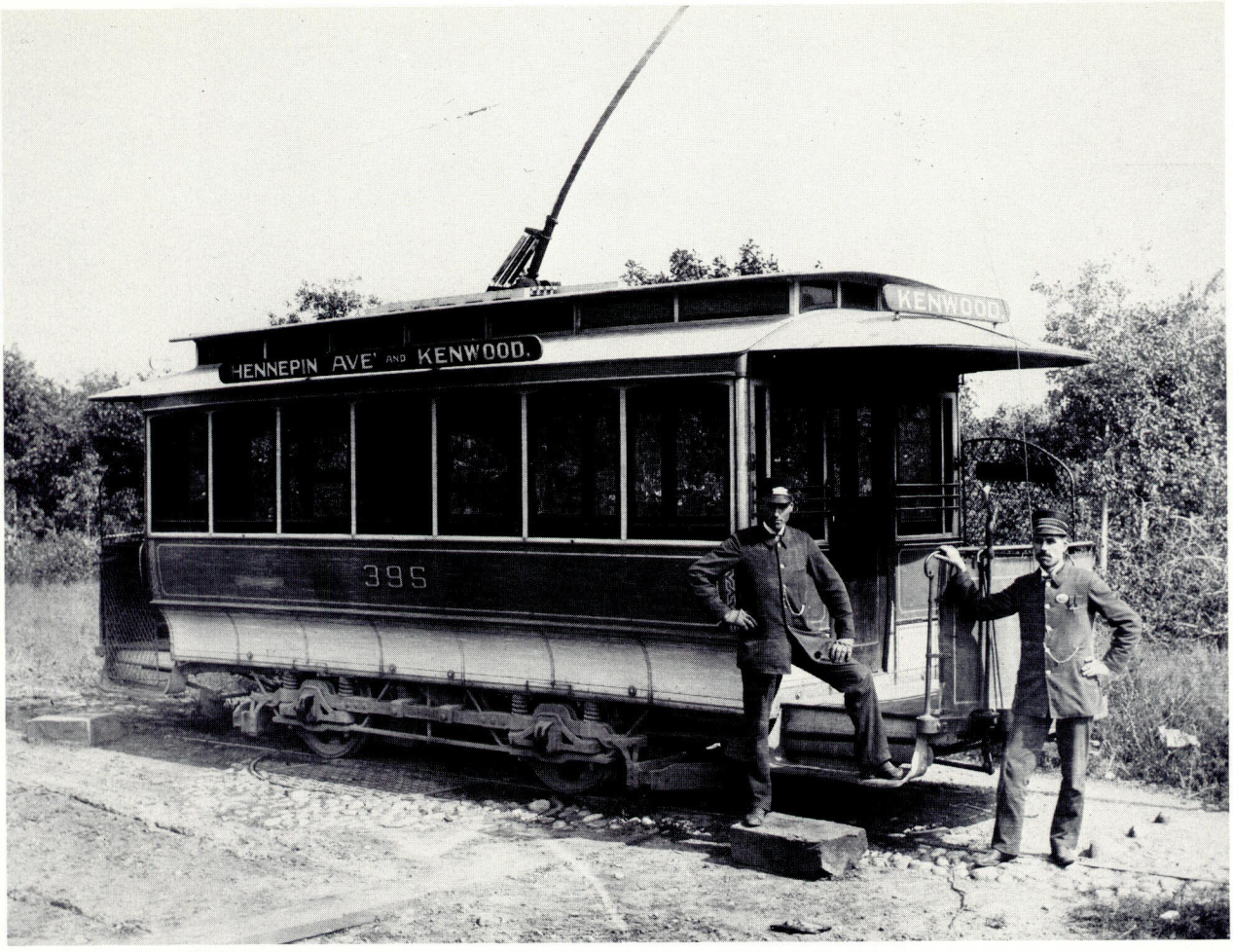
11 cars, 540-547 and 549-551, Northern Car Co., April 15 and/or May 15, 1892: 36 ft., double truck, 12 bench open motor cars, equipped with Bemis M.T. trucks and two T.H. W.P. 50 (25 h.p.) motors. Perhaps car 548 was the one shipped by Thomas Lowry to the Highland Improvement Co., Duluth, which became Duluth St. Ry. 95.

14 cars, 555-568, Northern Car Co., 1892: 36 ft., double truck, open motor cars. A June periodical reported that 557 was old "Motor Line" 65 repainted brilliant orange, with steps provided on one side only, the opposite side enclosed by a screen. Equipped with two 5'2" wheelbase trucks (33" dia. wheels) and two 25 h.p. motors.

TCRT was not satisfied with the cars previously acquired and felt they were wholly inadequate for the service required. So TCRT worked out its own car design, produced plans and specifications, and awarded a contract.

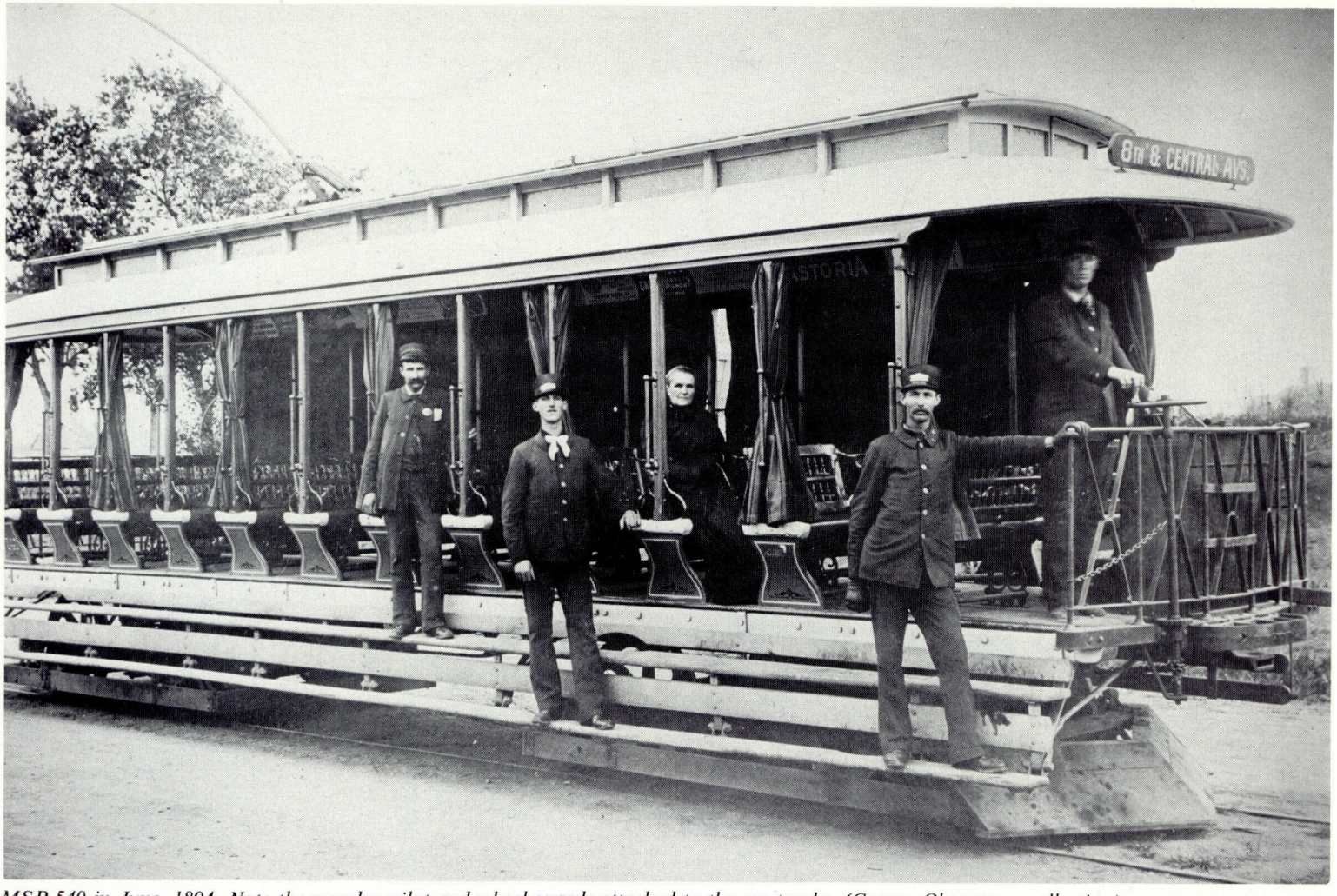
20 cars, 607-626, American Car. Co., July 9, 1892: double truck, vestibuled, closed motor cars. Details were: 42'6" long, 8'9" wide, two Bemis maximum-traction trucks (with wood side guards and attached front wood pilot), two Thomson-Houston W.P. 50 (25 h.p.) motors, TCRT series-multiple controller, all cross seats seating 43 persons, front and rear exits (no gates), Spear heater, and total weight 31,000 lbs.





Above: MSR 395 as it appeared when new at the end of the "Kenwood" line. Note the turntable visible under the car truck. (James Foster collection)

Below: MSR 477 also when new, southbound on Central Ave. between 28th and 29th Avenues N. E. The Soo Line Ry. Shoreham roundhouse can be seen in the left background. (Minnesota Historical Society collection)



MSR 540 in June, 1894. Note the wooden pilot and wheel guards attached to the car trucks. (George Obermeyer collection)

St. Paul City Ry. 1890-1892

In addition to the nine 18 ft. open, cable grip cars converted to electric motor cars for the first electric line in February, 1890, some or all of the latest 14 ft. closed horsecars, Brownell & Wight (1884) and John Stephenson Co. builders, were converted to electric motor cars during 1890. The specific number of cars so converted is unknown.

During 1890 a four-wheel Snow Sweeper was designed and built in the SPCR shops. It was powered with one 30 h.p. motor connected by sprockets and chain to the axles and controlled by a rheostat mounted below the car floor. One Columbia 10 h.p. motor was used to drive each broom, one rheostat controlling both motors, with connection to the brooms by chain and sprockets (direct drive).

1891

A February, 1891, magazine article stated that about 50 motor cars were in use in St. Paul: 17 cars with Edison motors on the "Interurban" line; 8 cars with Thomson-Houston motors on the "West 7th St." line; 10 cars with Edison motors on the "Grand Ave." line; 10 cars with Edison motors on the "Rice St." line; and 5 extra cars.

No specific references to the first order of electric motor cars from a commercial car builder have been located other than a February, 1891, article reporting that new 18 ft. cars were being received for the "Interurban" line. TCRT records as of 1904 indicate some duplication of numbers due to the separate numbering systems, but it appears that at least the following new cars were received:

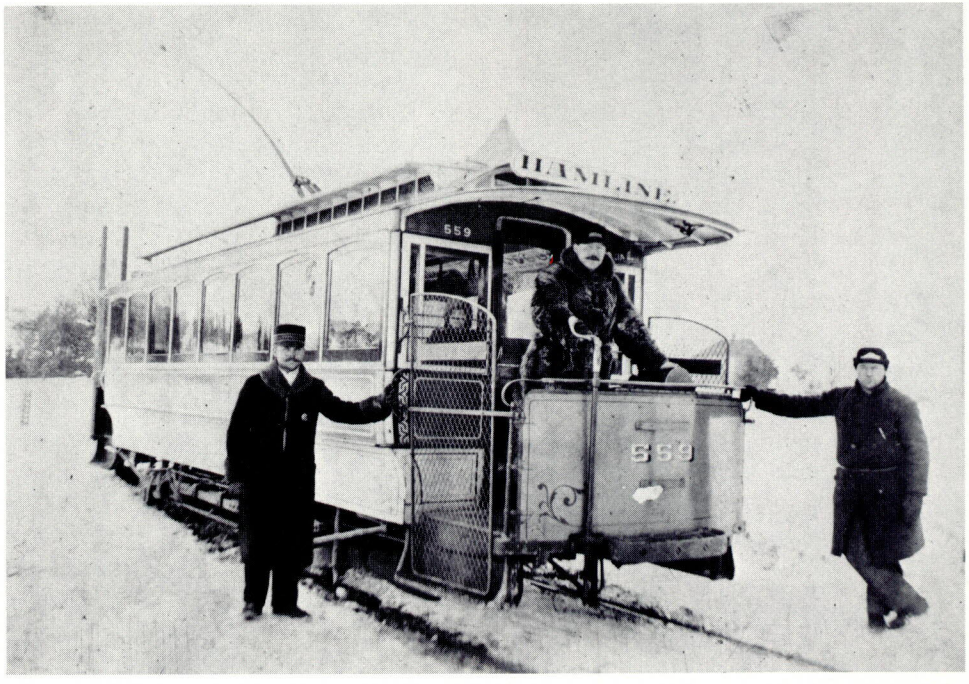
42 cars, 328-369, LaClede Car Co., February 20, 1891: 18 ft. single truck, closed motor cars. This number series follows the closed cable trailers and thus duplicates the numbers assigned to the MSR order from LaClede Car Co. of the same date.

The May, 1891, Street Railway Journal reported that 120 cars were being built for Mpls and St. Paul: 20 cars by Northern Car Co., 60 cars by Jones' Sons and 40 cars by John Stephenson Co. Company records with regard to the last order are incomplete; in addition a newspaper article reported that the SPCR management was responsible for a mistake in car numbering in that a recent order of cars for St. Paul had arrived bearing numbers consecutive (sic) with the latest Minneapolis cars (the two systems at this time were supposed to be kept distinctly separate as far as cars were concerned). This was an order of 18 ft. single truck, closed motor cars built by John Stephenson Co. dated May, 1891, and numbered, as nearly as can be determined, 503-539.

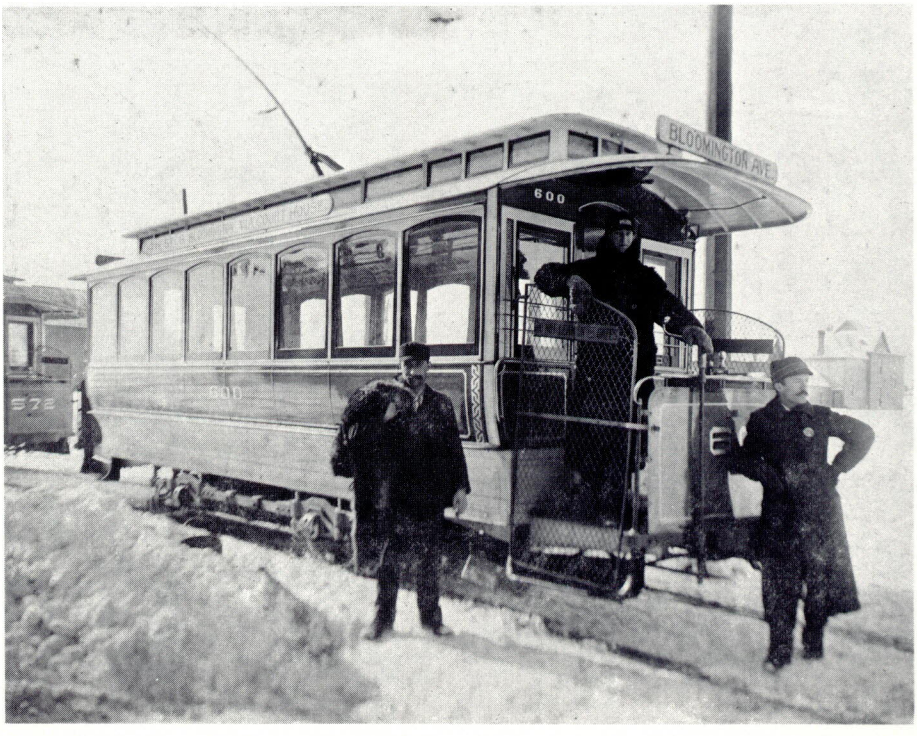
1892

A February, 1892, magazine article reported that Northern Car Co. was to rebuild 68 cars to 22 ft. length; this refers to the 38 cars for Minneapolis (Jones "bobtails" — previously described) and 30 cars for St. Paul. The February, 1892, Street Railway Journal stated that the first rebuilt 22 ft. car turned out of Northern Car Co. shops was made from joining two Stephenson horse cars from St. Paul; a local report said this was car 528 (sic), the first new remodeled car completed after MSR 284 had been tested. Apparently these 30 cars were rebuilt from the 14 ft. closed cars of the Brownell & Wight and John Stephenson Co. orders which had been previously converted from horsecars to electric motor cars. The cars were re-numbered 540-569 during the rebuilding, presumably all work being done by Northern Car Co. The sole remaining TCRT records pertain only to cars 567-569 listing them as rebuilt June, 1892, from Brownell & Wight cars; the length is given as 18 ft., but this is no doubt erroneous.

A local publication dated July, 1892, reported that old "bobtail" horsecars were being rebuilt to Salters and that MSR and SPCR combined had about 40 such cars. In addition several Snow Plows had been purchased.



SPCR 559, one of thirty cars rebuilt to 22 ft. length during 1892. Note the design similarities to SPCR horsecar 94 (see page 216). (H. B. Herington; William J. Olsen collection)



MSR 600, one of thirty-seven cars rebuilt to 22 ft. length during 1892. The photograph was taken December 28, 1892, on the loop at 32nd St. and Bloomington Ave., Minneapolis, (H. B. Herington; Edwin H. Nelson collection)

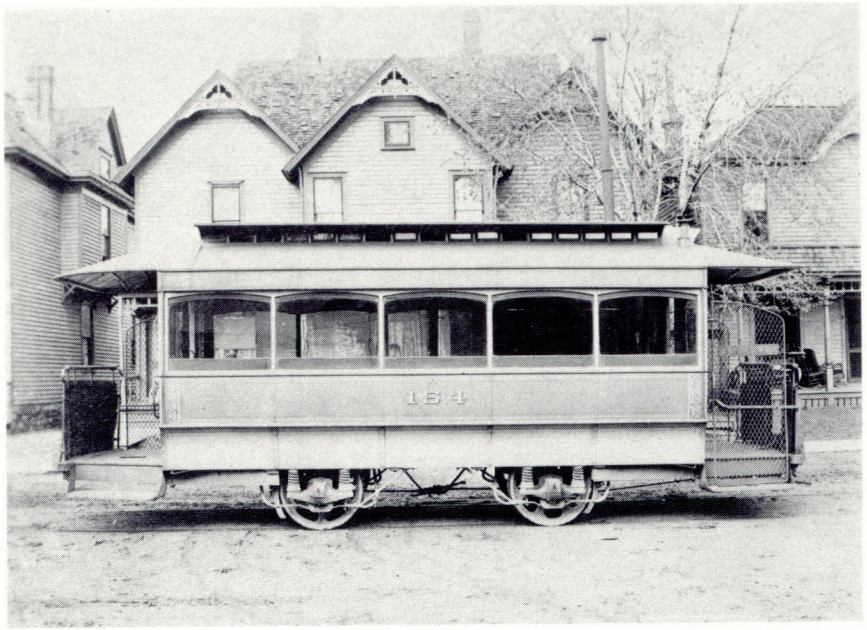
Frank Trumbull's Report – January 18, 1893

As part of his report, Mr. Trumbull included a lengthy summary of the type and quantities of equipment owned and operated.

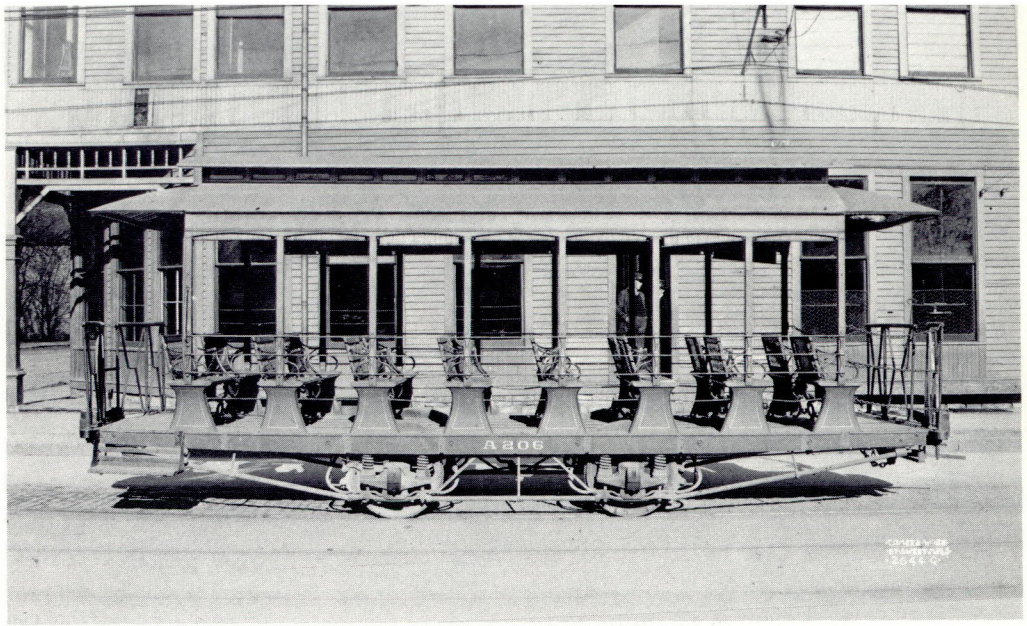
Description of Equipment	**Minneapolis**	**St. Paul**	**Total**
14' Single Truck, Closed Motors		13(*)	13 (Note 1)
16' Single Truck, Closed Motors		5(*)	5 (Note 1)
18' Single Truck, Closed Motors	150	84	234
22' Single Truck, Closed Motors	39	30	69
41' Double Truck, Vestibuled, Closed Motors	20		20
Subtotal	209	132	341
18' Single Truck, Open Motors		9*	9 (Note 2)
24' Single Truck, Open Motors	60		60
34' Double Truck, Open Motors	25		25
Subtotal	85	9	94
Total Motor Cars	294	141	435
(*) of these 27 cars, 22 were not available for service			
14' Single Truck, Closed Trailers	19	16	35 (Note 3)
16' Single Truck, Closed Trailers	66	8	74 (Note 3)
Subtotal	85	24	109
24' Single Truck, Open Trailers	82		82
25' Single Truck, Open Trailers		15	15
Subtotal	82	15	97
Total Trailers	167	39	206
18' Single Truck, Open, Cable Grip Cars		38	38
16' Single Truck, Closed, Cable Trailers		34	34
25' Single Truck, Open, Cable Trailers		32	32
Total Cable Cars		104	104
Horse Cars	36	12	48
(Equipment used on the "Interurban" line is included in the Minneapolis figures.)			
Service Equipment			
Salt Cars — Common	20	11	31
Salt Cars — Automatic	13	7	20
Snow Plows	22	15	37
Snow Sweepers	2		2
Scrapers	9	8	17
Supply Cars	2		2
Road Wagons (horse-drawn, non-rail equipment)	14	13	27
Horses	22	24	46
Electric Motor Equipments	**Minneapolis**	**St.Paul**	**Total**
Sprague	109	80	189 sets
Thomson-Houston	92	30	122 sets
Total	201	110	311 sets

(Note 1): rebuilt horse cars.
(Note 2): rebuilt cable grip cars.
(Note 3): converted horse cars

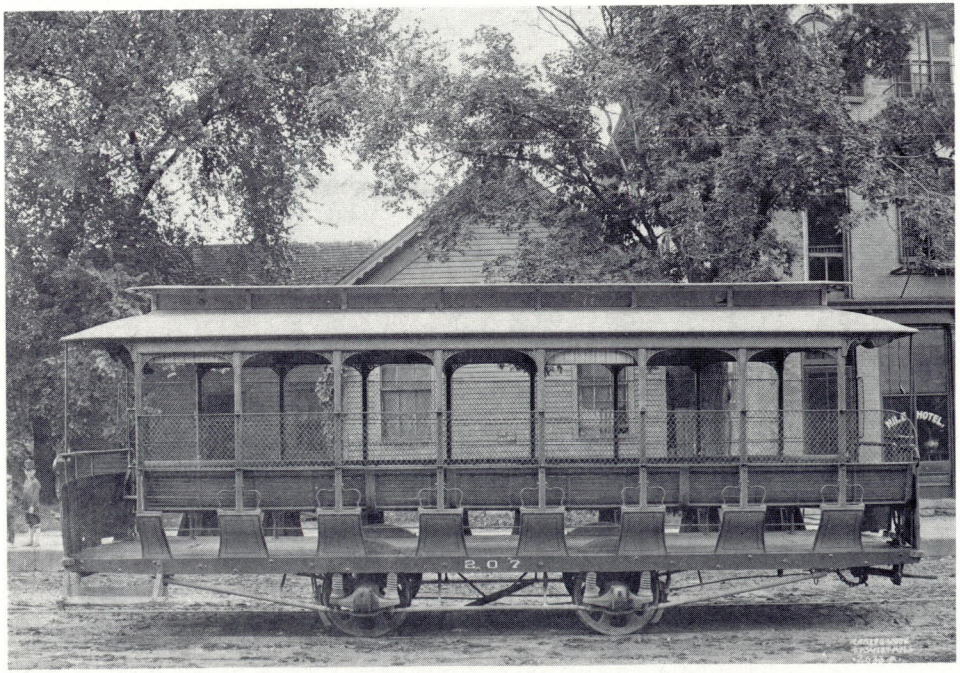
Mr. Trumbull felt that the only defect was the large percentage of Sprague motors; it was his opinion that they were inferior to Thomson-Houston and Westinghouse motors and entailed considerable expense to rebuild. (A magazine article dated January, 1892, reported that the first motors used were Sprague 15 h.p. with subsequent motors acquired being Thomson-Houston SRG motors. Troubles were experienced with the Sprague motors but the Thomson-Houston motors were much more satisfactory. Two 15 h.p. motors were used on city cars while two 25 h.p. motors were used on the Interurban line cars.)



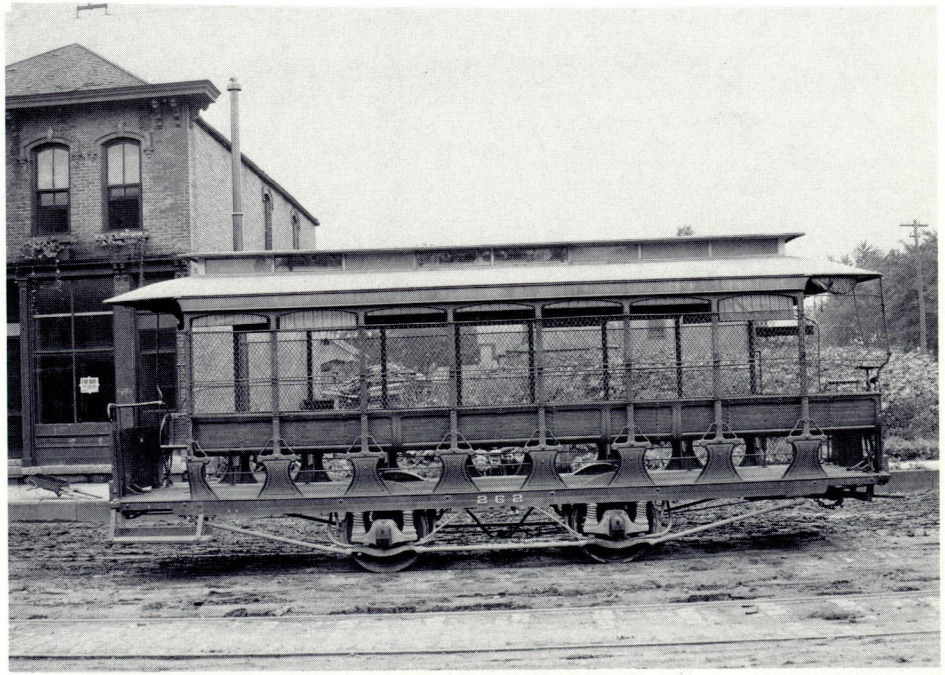
MSR trailer 154 (a converted horsecar) in 1904. (Sweet Studios; Joe Hutchinson collection)



SPCR trailer A206 (a former cable trailer) on Ramsey St. at the Smith Ave. carhouse, 1904. (Sweet Studios; Robert Bowes collection)

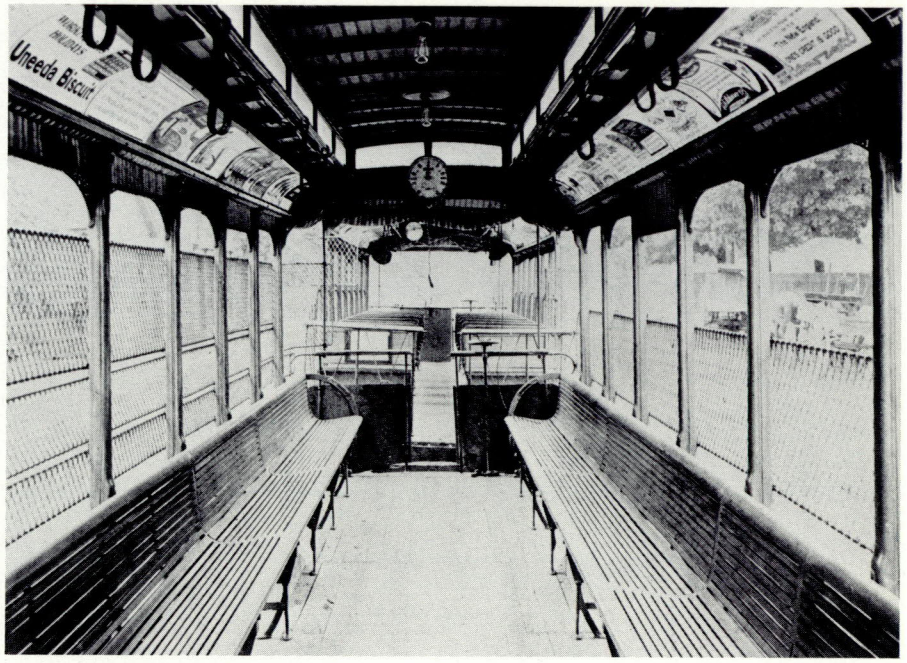


MSR trailer 207 (a former horsecar) on University Ave. N. E. at East Side Station, 1904. (Sweet Studios; Robert Bowes collection)



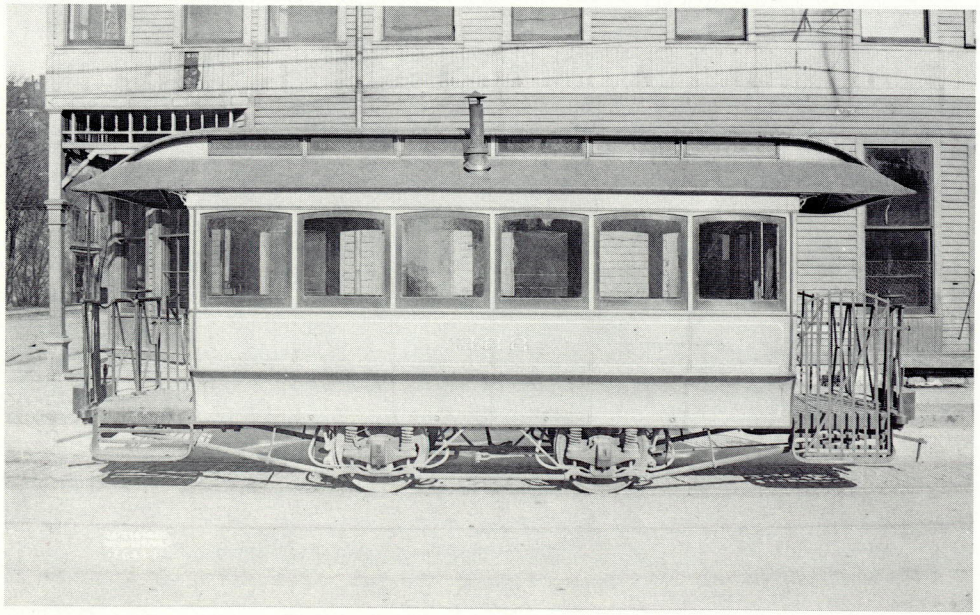
MSR trailer 262 (a former horsecar) also at East Side Station, 1904. (Sweet Studios; Robert Bowes collection)

Interior view of trailer A206.

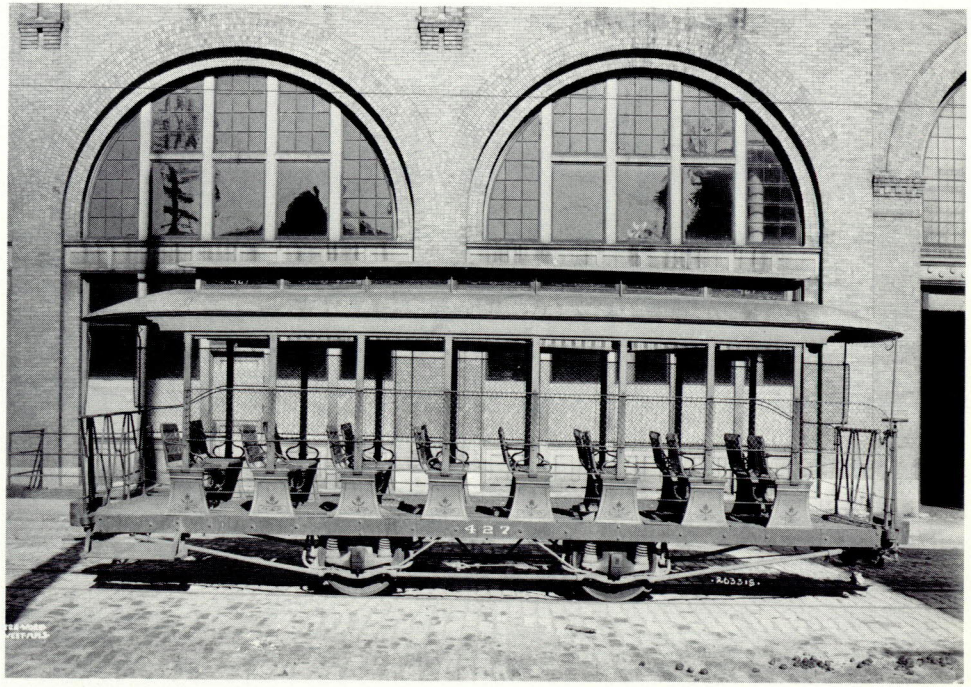


Interior view of trailer 207. Note how the transverse benches were re-arranged longitudinally. Open motor car 678 is coupled to the trailer.

(Both photographs Sweet Studios; Edwin H. Nelson collection)



SPCR trailer 322 (a former cable trailer) at the Smith Ave. carhouse, 1904.



MSR trailer 427 (originally a motor car) in front of the 3rd Ave. N. carhouse and general offices, Minneapolis, 1904.

(Both photos Sweet Studios: Robert Bowes collection)

Equipment Acquisitions – 1893

The City of Minneapolis passed an ordinance requiring the use of open cars during the summer months. A March, 1893, periodical reported that because of the ordinance the company had ordered 165 new open cars for May 1st delivery: 105 cars from American Car Co.; 25 cars to be 40' 3" long for the Interurban line; 80 cars to be 27'9" long for Minneapolis lines; and 60 cars from LaClede Car Co., to be 27'9'.' long for Minneapolis lines.

Another article stated that orders were placed for 85 open cars and 30 new cars for the Interurban line.

Frank Trumbull made another visit to the Twin Cities in June, 1894, and reported that 203 additional car bodies and 30 additional car equipments (sic) had been purchased since his last report in January, 1893.

According to existing TCRT records as of September 1, 1904, we know for certain that the following cars were ordered and received.

80 cars, 627-706, American Car Co., January 19, 1893: 27' single truck, open motor cars.

25 cars, 707-731, American Car Co., January 6, 1893: 40' double truck, 13 bench, open motor cars.

65 cars, 570-634, (SPCR number series), LaClede Car Co. January 19, 1893: 28' single truck, open motor cars. A July, 1893, periodical reported that open cars being built for Minneapolis and St. Paul had 8 benches, a center aisle, large platforms, deck roofs, and were painted light green.

The above added 170 cars, leaving a difference of 33 cars in comparison with Trumbull's figure. 30 cars additional would have had to be numbered in the SPCR series as 635-664 but no evidence of this has been found. The other 3 cars may have been those acquired by the Minneapolis Land & Investment Co. for its St. Louis Park line (Thomas Lowry owned stock in the M. L. & I. Co.) One magazine reported that "Minneapolis St. Ry. was further improved by the addition of handsome new vestibuled cars for the St. Louis Park line" (August, 1893). The two major carhouse fires in St. Paul (1895 and 1899), which destroyed much equipment, may account for the lack of records on these additional 33 cars.

Equipment Modification Programs, 1893-1896

All the original electric motors were controlled by rheostats, the rheostat being mounted under the car floor and connected by sprocket and chain to the controlling stand and handle located on the front platform. In October, 1893, TCRT shops began improving this arrangement so that trucks and motors could be changed from open to closed cars, and vice versa, without delay. The rheostat was moved to the front platform and enclosed in a large box which also contained the resistors, fuse boxes and switches. This made the equipment more controllable and less subject to danger from burning. TCRT claimed they were the first company in the U.S. to do this.

TCRT soon learned that the riding public was not accustomed to boarding and alighting from the faster electric cars; the number of accident claims for this type had risen substantially. Wire-mesh guards were installed on both sides of the front platform and on the left side of the rear platform of closed cars. These guards were called gates, but they were movable only to the extent that their location could re quickly re-arranged on cars equipped for double end operation. Thus the only entrance and exit was from the right side of the rear platform under constant observation of the conductor.

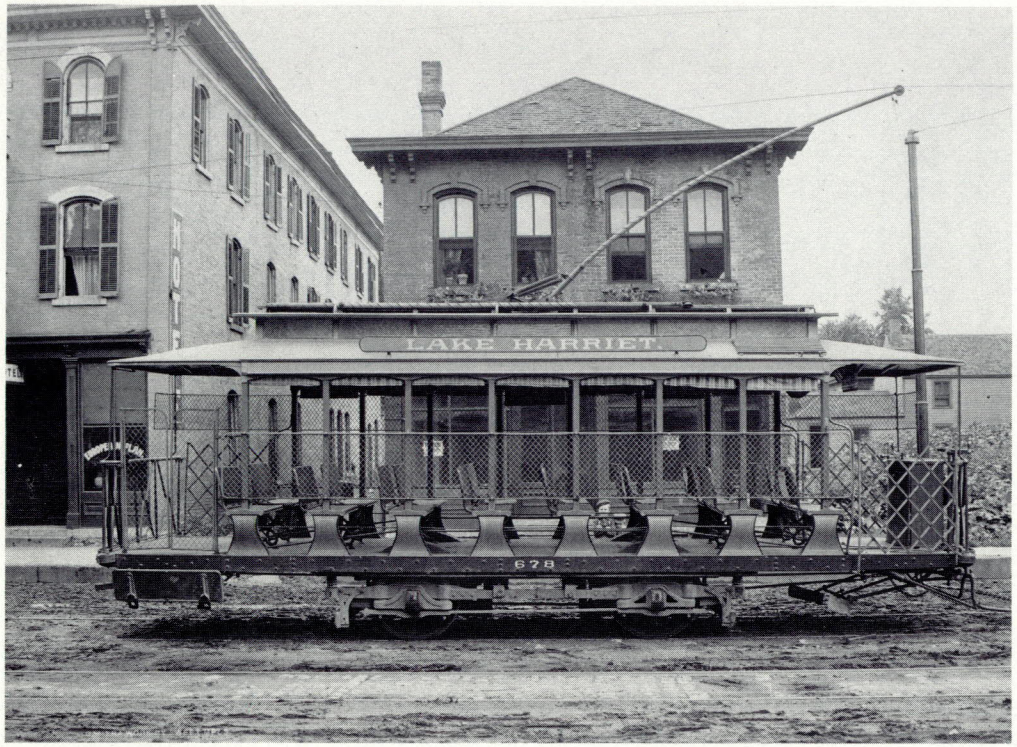
The Sprague motors which Frank Trumbull found deficient, were all rebuilt, the last motor being completed in June, 1894.

Beginning in August, 1894, wire screens were placed over the windows on the left side of closed cars. The purpose was to avoid injuries to passengers from both the overhead poles (located between the tracks) and passing streetcars.

A motor specification sheet dated November 16, 1894, contained much technical data on the early motors. The following basic information of general interest has been taken from this sheet.

SRG = single reduction gear.
W.P. = weather proof or water proof.
DRG = double reduction gear.

Motor-Type	Dates Acquired	Gearing
Thomson-Houston DRG F30	1889, 1892, 11-1893 and 6-1894	15:49/17:49
Thomson-Houston SRG 30	1890, 1891, 1892 and 1893	14:67/17:64
Thomson-Houston Special SRG	3-20-1894	17:64
Thomson-Houston SRG 50	1890	14:67
Sprague #6	1890 and 1891	17:64/16:50
Sprague "New"	1892	21:60/16:50
Thomson-Houston W.P.	1892, 5-1893, 8-1893, 11-1893, 12-1893, 2-3-1894, 2-4-1894 "Little Whale" (W.P. L.W.), 1-22-1894 "SRG", 3-6-1894 "Factory", and 3-20-1894 "3 Motor Equipment".	14:67/17:64

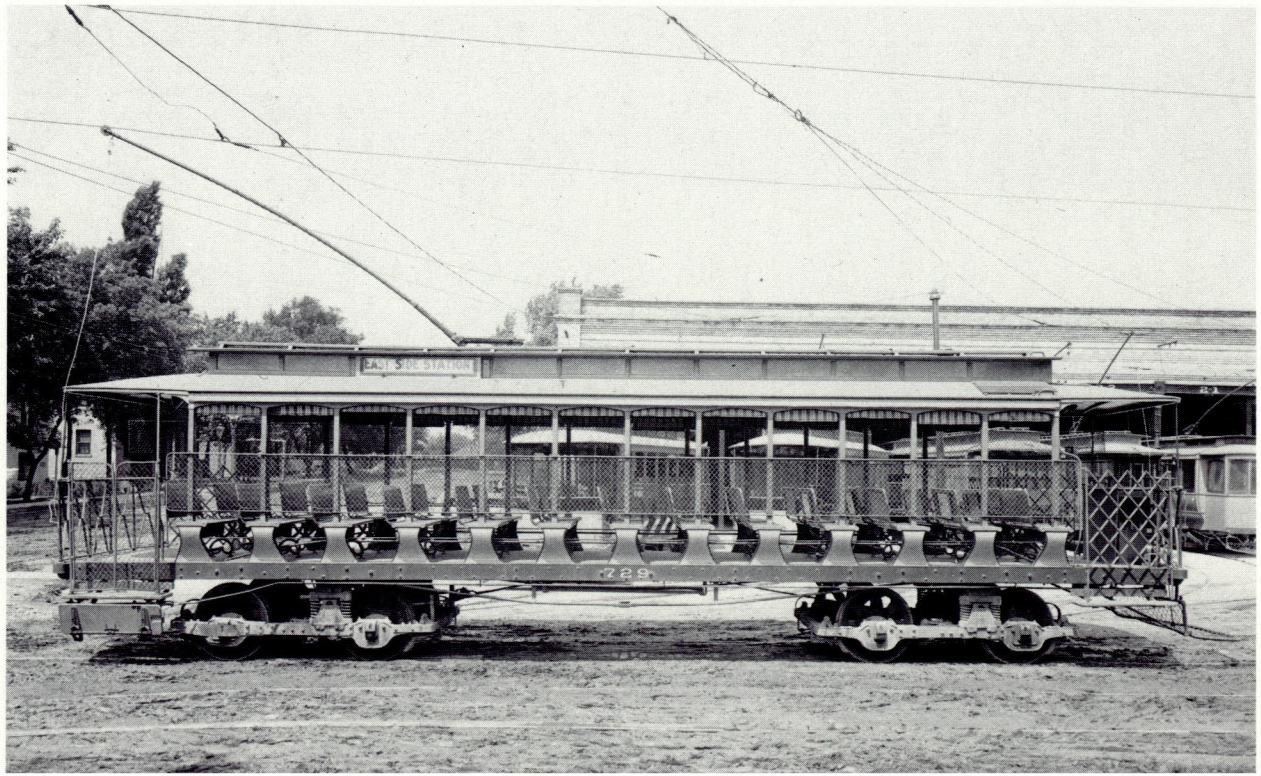


Above left: MSR open motor car 678 at East Side Station, Minneapolis, 1904. Note the wood trolley pole used on these early cars.

Above right: Interior view of 678 looking toward the front and providing a closer look at TCRT's rheostat controller.

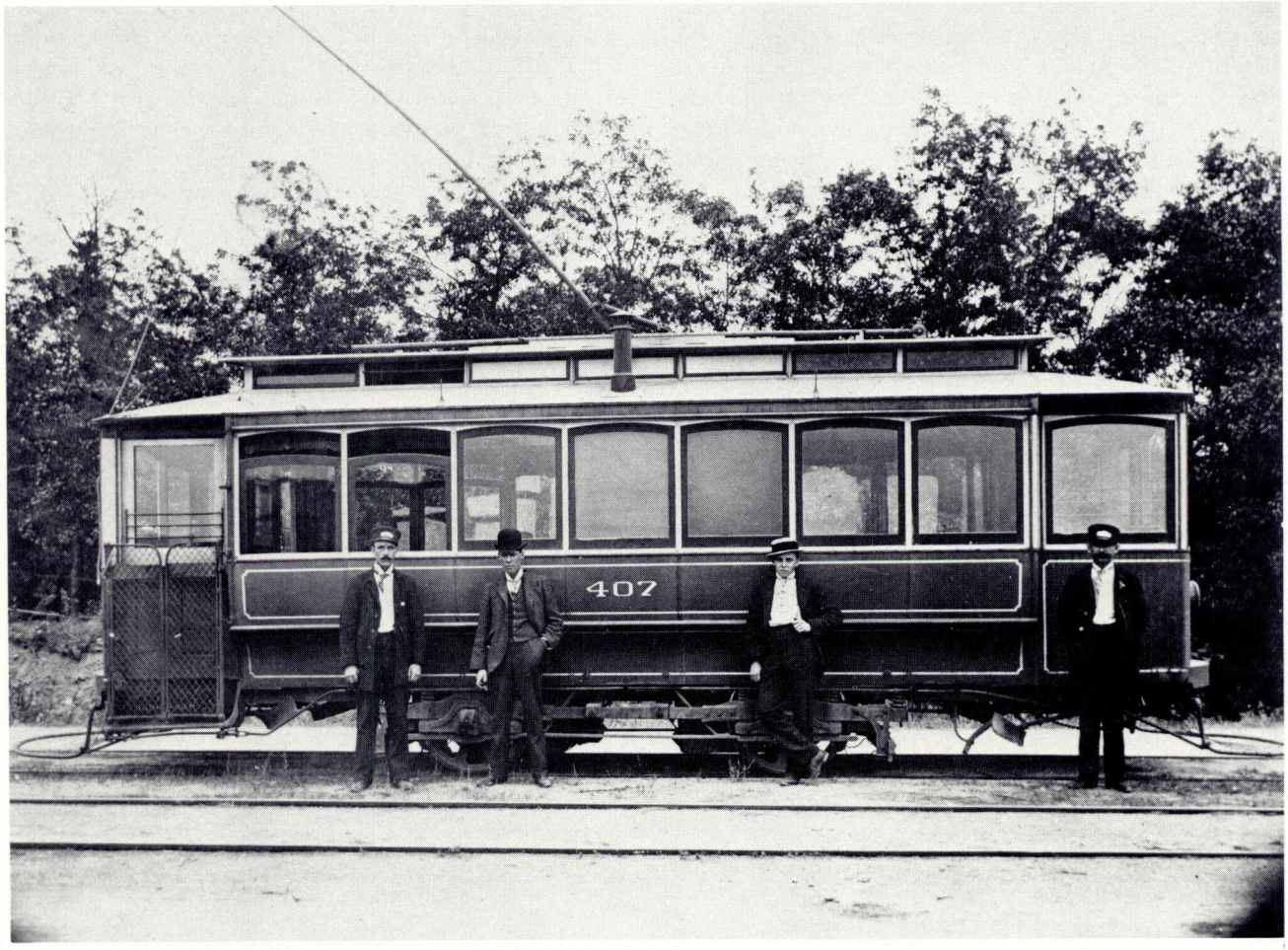
Right: MSR open motor car 729 at East Side Station, Minneapolis, 1904. Note the provision for a front exit folding step.

(All photographs Sweet Studios; collections of Robert Bowes and Edwin H. Nelson)



A motor "equipment" consisted of two motors for the single truck, and the number in the model type referred to the combined horsepower of the two motors. Thus the SRG 30 consisted of two 15 h.p. motors; the W.P. 50 consisted of two 25 h.p. motors.

In January, 1893, the Minnesota legislature was considering a "vestibule bill" requiring all streetcars in the state to have enclosed front and rear platforms from December through March each year. TCRT opposed the bill but it passed the legislature; an appeal to the state supreme court was undertaken but the court upheld the law in July, 1894. During 1894 and 1895 TCRT was busily engaged in constructing front vestibules for many of its cars; apparently the law as passed did not require vestibules on the rear platform. The 1893 financial panic had resulted in loss of patronage so that service was cut substantially; consequently many cars were placed in storage and these were not fitted with front vestibules. Simultaneously with the installation of vestibules, a system of folding wire-mesh gates for the rear steps of closed cars was devised, under control of the motorman. Cars 607-626 received folding gates on both front and rear platforms, the gates being controlled by the conductor. The first car was equipped with gates on November 20, 1894, and the last car completed April 15, 1895. From this was derived unique terminology that survived until the end of streetcar operation. The "pole side" of a car was the left hand side adjacent to the overhead poles located in the center of the street between double track, while the "gate side" of the car was the right hand side on which the folding gates were installed. (It should be noted that the original wire-mesh guards were retained on the "pole side" of the rear platform of closed cars.) TCRT cars were normally operated as single end cars; however, certain operations required double end cars and these were the only cars which received vestibules on both platforms. Such cars had the folding wire-mesh gates at the steps on diagonally opposite ends; a hinged door behind the gates could be used to close off the gates and steps so as to fully enclose the platform being used by the motorman.



MSR closed motor car 407 as rebuilt "double end vestibuled". Note how the vestibule side door fully enclosed the platform in compliance with Minnesota statutes. (Minnesota Historical Society collection)

The early horse cars as well as the first electric cars utilized removable destination sign boards mounted in brackets on the car roof; at night colored lamps under the roof were used (called a failure). In 1892 a small brass box containing a light and colored glass slides were installed on each car. In 1894 new illuminated signs were being tested but details were not provided. In 1896 a new system was begun: revolving wooden four-faced, multi-colored boards were mounted on each side of the car roof, with a glass sign in the deck roof front window (white letters on a black background).

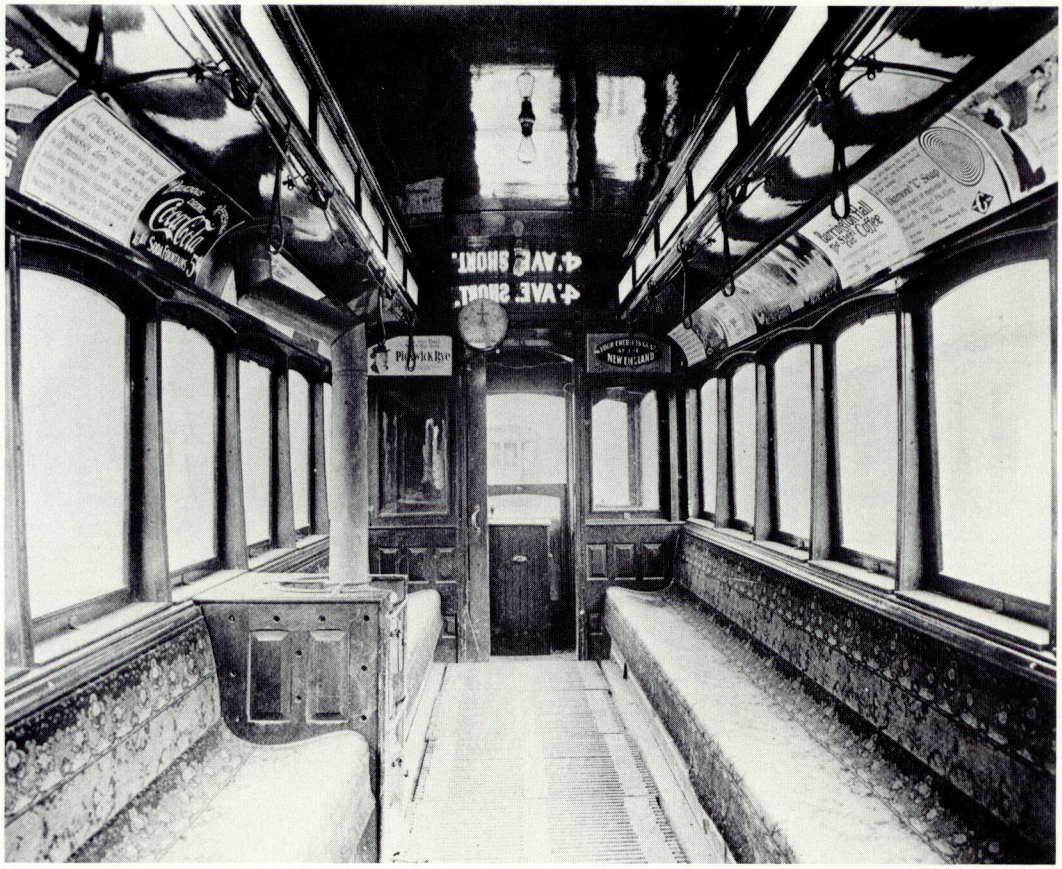
Photographs show that the rear dash of motor cars and grip cars, and both dashes of trailers, were divided; that is, a passageway was provided in the center. This was part of the original car design to allow the conductor on the motor car to readily pass through to the trailer to collect fares when trailers were used for only two or three trips. If the trailers were used all day, each trailer had its own conductor.

During June, 1896, all open motor cars were modified; the footboards were removed, both sides enclosed with wire-screen guards, an aisle cut through the benches in the center of the car, and steps constructed at the rear platform enclosed by a single pair of folding wire-mesh gates. The long open motor cars were strengthened and truss rods added. A number of open motor cars were lengthened by cutting them in two and splicing in new construction; this work was also done in the summer of 1896 but no details were given as to the cars involved.

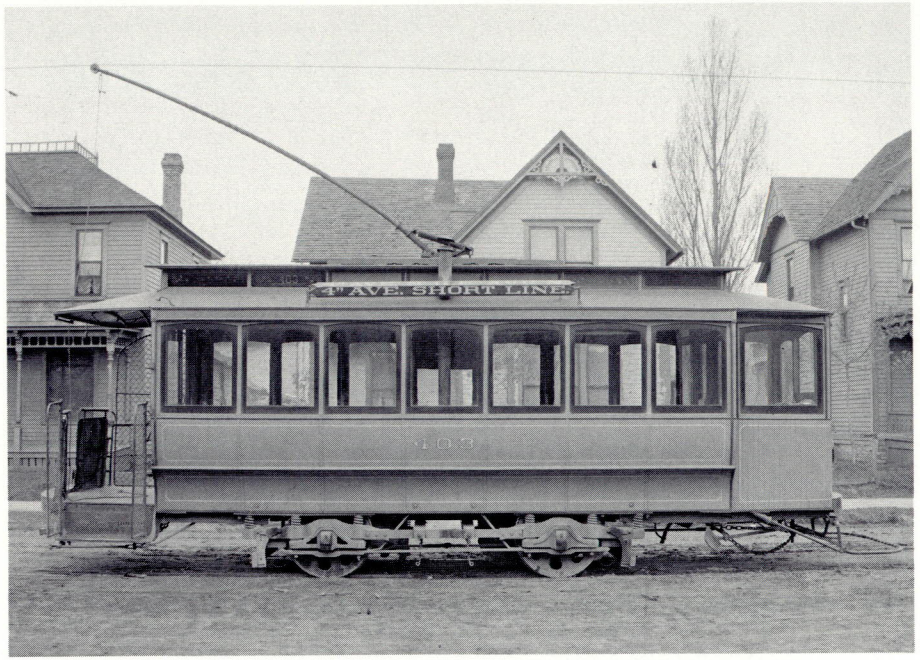
Open motor cars 540-547, 549-551, and 707-731 were subsequently equipped with a three-window front dash, but this was done sometime after 1896-1897, the exact date unknown.

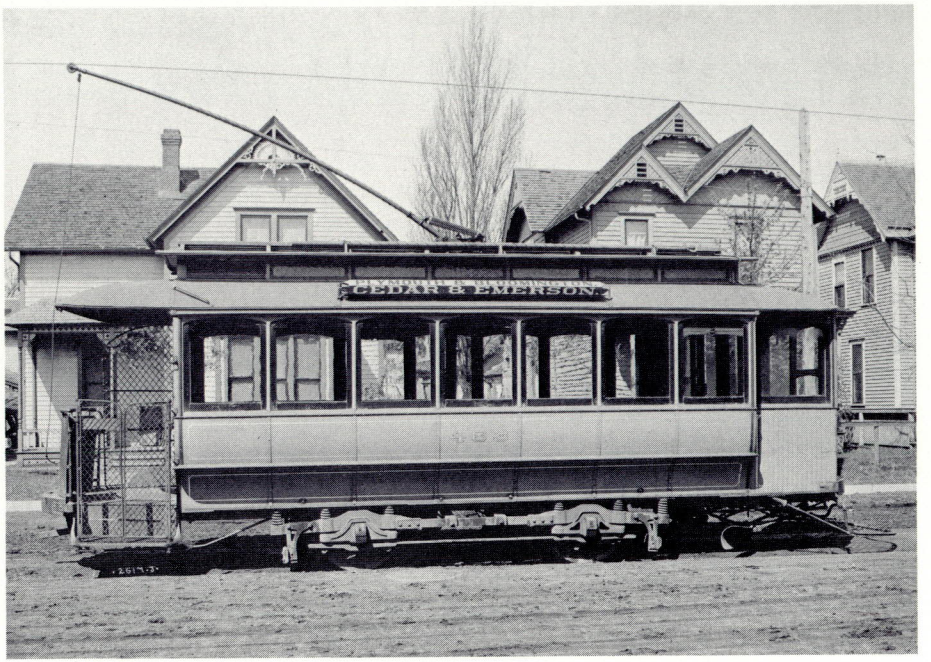
In early horsecar days each car was painted a specific color depending upon which line it was used. During the 1880's each company had developed a standard color for all cars: MSR used canary yellow with white trim, while on SPCR the prevailing color was a rich green. In 1896 TCRT adopted a system wide color scheme of lemon yellow with trim colors of green, bronze and silver. A program was developed to repaint all cars at the 3rd Ave. No. (Minneapolis) shops at a rate of 15 cars per week. Because of the duplicate numbers on many MSR and SPCR cars, as the SPCR cars were repainted the prefix "A" was added to the car number to differentiate them from the MSR cars. From old photographs and records it is apparent that not all cars were repainted, especially among the trailers. Subsequent to 1896 a revision was made in that the prefix on motor cars was changed from the letter "A" to the numeral "1". Based upon the 1904 records, this seems to be what took place: MSR 303-362 became 1303-1362; MSR 363-369 became 1363-1369; and SPCR 570-634 became 1570-1634. Various cars, but not all cars, in the MSR 503-538 series and SPCR 503-539 and 540-569 series became 1500's; there were no duplications between the series.

In 1896 TCRT began manufacturing its own trolley wheels.



Interior view, looking toward the front, of MSR closed motor car 507. (Sweet Studios; Edwin H. Nelson collection)





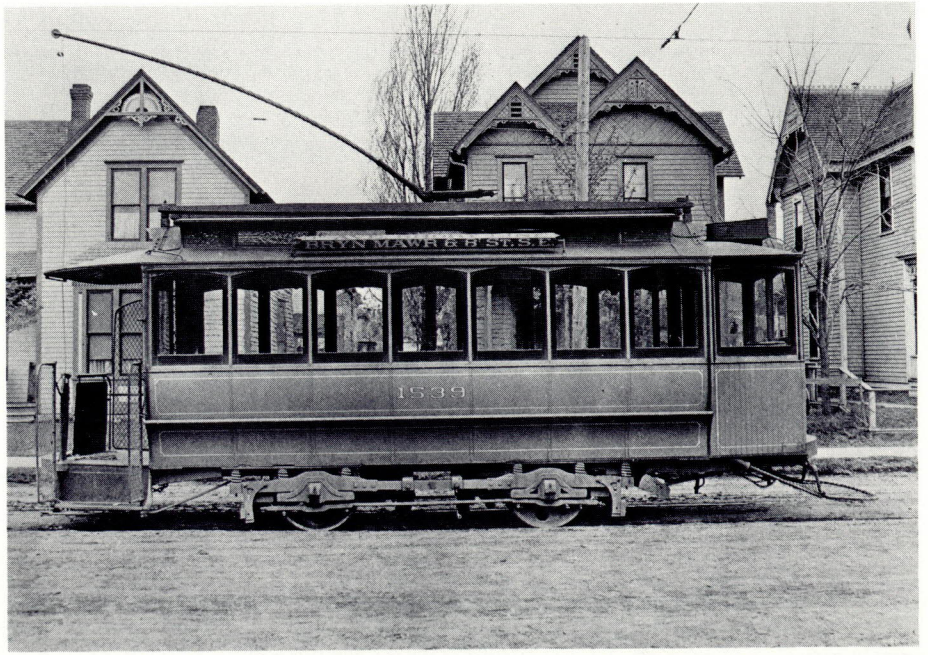
Above left: MSR closed motor car 403 rebuilt with vestibuled front platform.

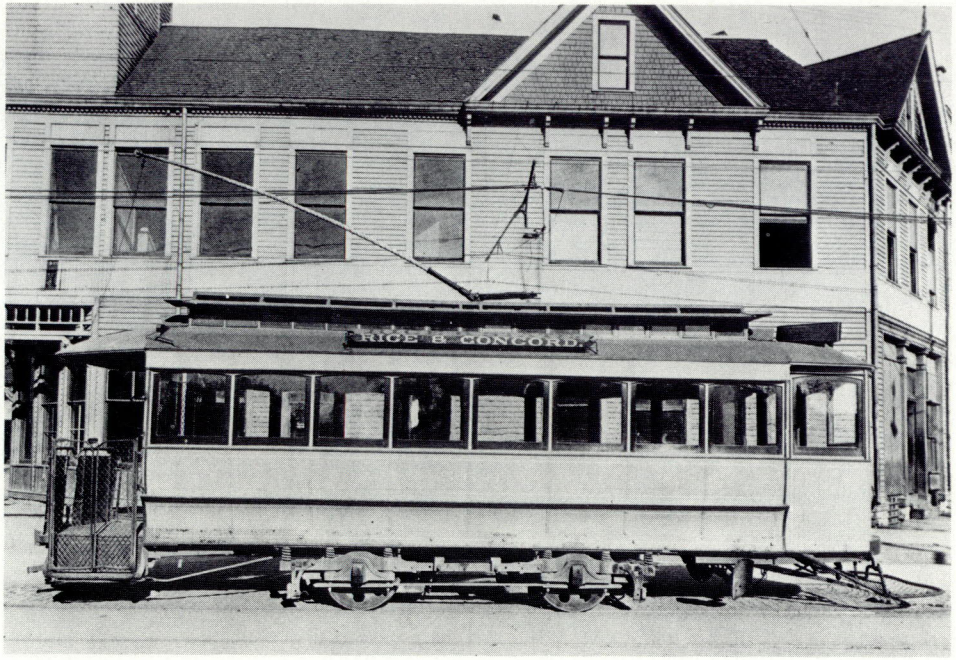
Below left: MSR closed motor car 507 rebuilt with vestibuled front platform.

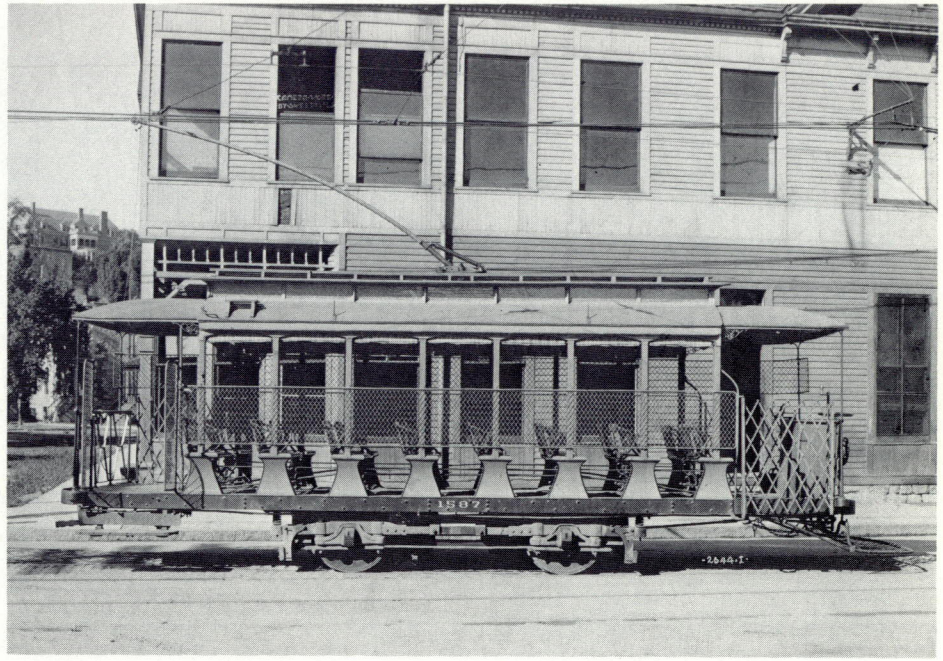
Above right: MSR closed motor car 463 rebuilt with vestibuled front platform.

Below right: SPCR 1539 as similarly rebuilt and renumbered. Note the different roof style necessitating the illuminated destination sign on the roof over the front platform.

All photographs were taken in 1904 on Blaisdell Ave. (cars facing north) at the 31st St. Shops. (Sweet Studios: collections of Robert Bowes and Edwin H. Nelson)



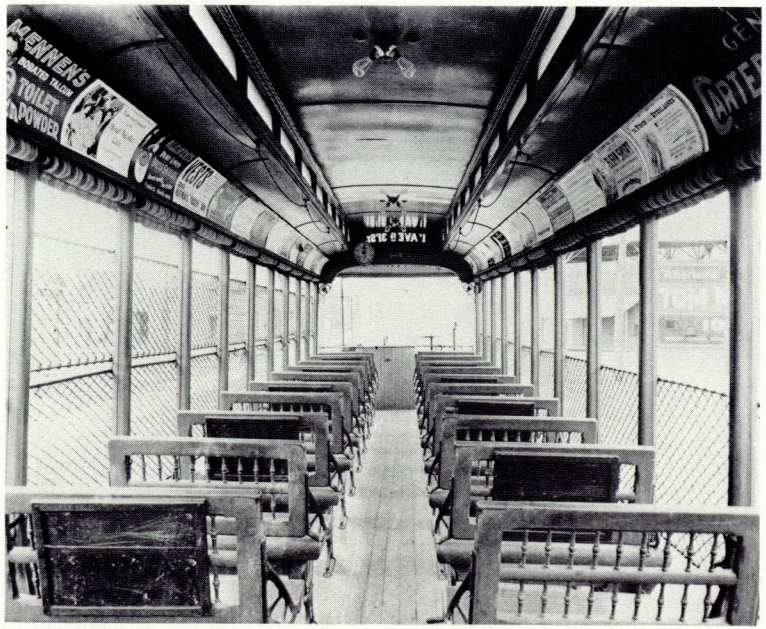


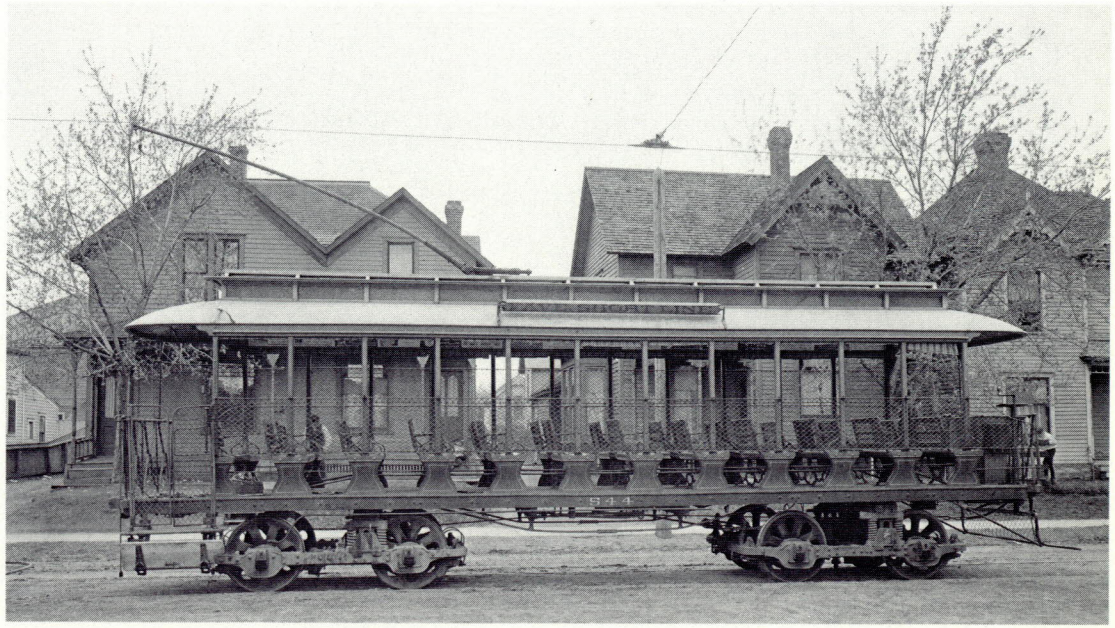


Above left: SPCR closed motor car 569, one of the 22 ft. rebuilds, at the Smith Ave. carhouse. Note the roof style and destination sign similar to that on SPCR 1539 in the photograph on page 231.

Above right: SPCR open motor car 1587 at the Smith Ave. carhouse.

All photographs were taken in 1904. (Sweet Studios; collections of Robert Bowes and Edwin H. Nelson)





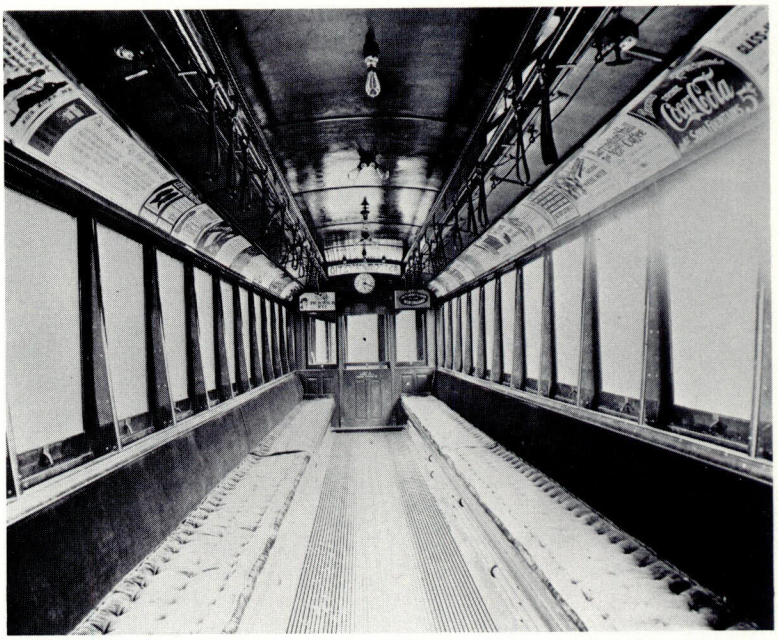
Below left: Interior of open motor car 544 looking toward the front. The Nicollet Ball Park, Minneapolis, can be seen in the right background.

Below right: MSR open motor car 544 on Blaisdell Ave. at the 31st St. Shops.

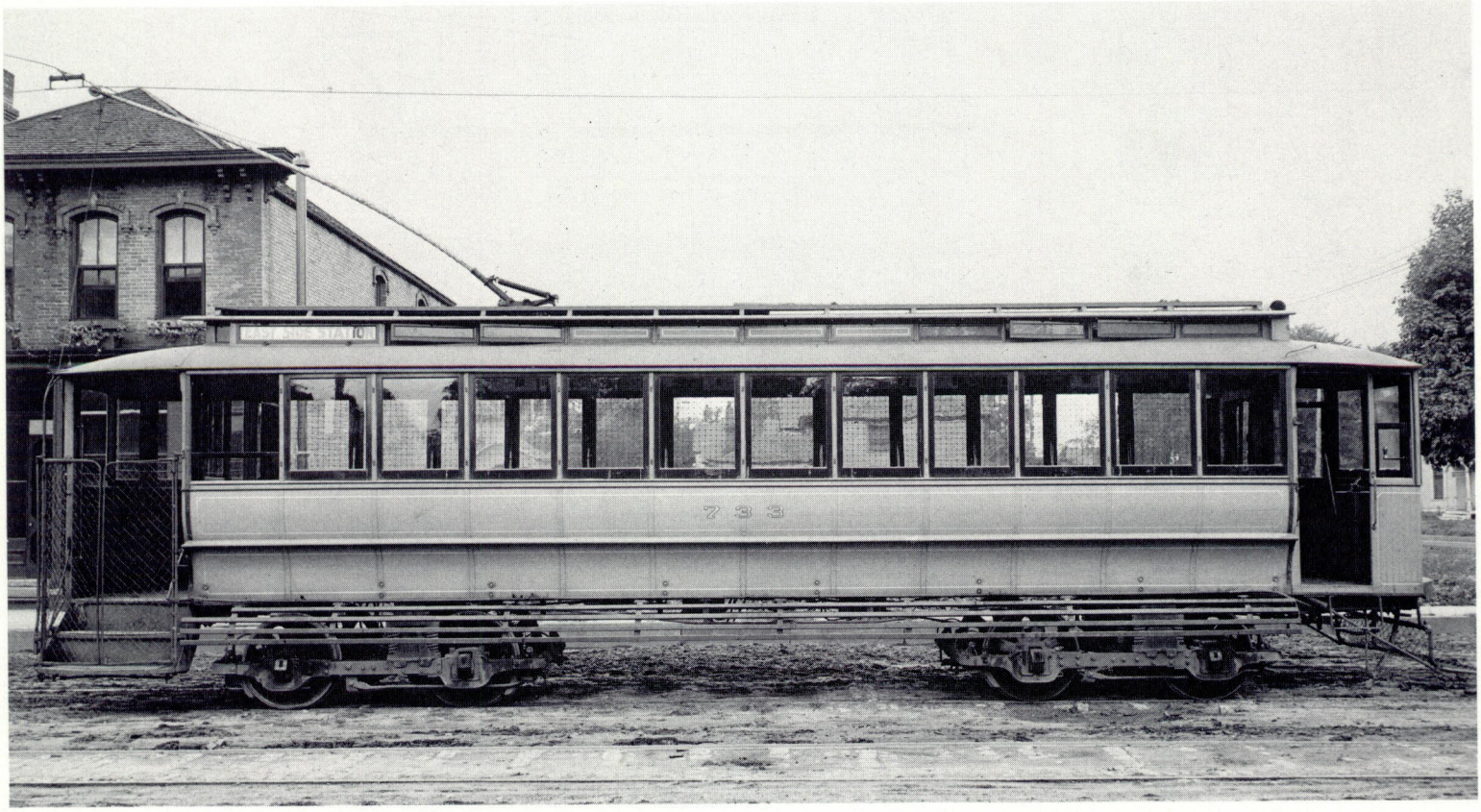
"Windsplitters"

A newspaper article dated September 11, 1896, stated that six 18 ft. closed cars were being rebuilt to 30 ft. length: the cars were cut in two, lengthened, vestibules added on both ends, and new main bracing placed under the floor; the cars seated 43 on longitudinal seats, weighed 10,000 lbs. less than MSR 607-626, and the heater (stove) was located entirely in the front vestibule. These cars were to be placed on the "Interurban" line by November 1, 1896. Another article said these cars were rebuilt from six well-built, strong trailers which were too heavy to be good trailers. As rebuilt the cars did not prove satisfactory because of narrowness and general lack of stability above the floor line; consequently they were placed on local lines instead of the "Interurban" line.

4 cars, 732-735, rebuilt November, 1896, in MSR shops from cars originally built by Pullman's Palace Car Co.: 44 ft., double truck, closed motor cars. The cars were probably equipped with Bemis M.T. trucks, 2 Thomson-Houston W.P. 50 motors, and TCRT series-multiple controller. Company records list these cars as "Windsplitters" but the reason for this nickname is not known.



Interior view of a "windsplitter" looking toward the front. The lettering below the center window on the bulkhead reads "Built By Twin City Rapid Transit Co." (Sweet Studios; Edwin H. Nelson collection)



"Windsplitter" 733 on University Ave. N. E. at East Side Station, Minneapolis, 1904. (Sweet Studios; Robert Bowes collection)

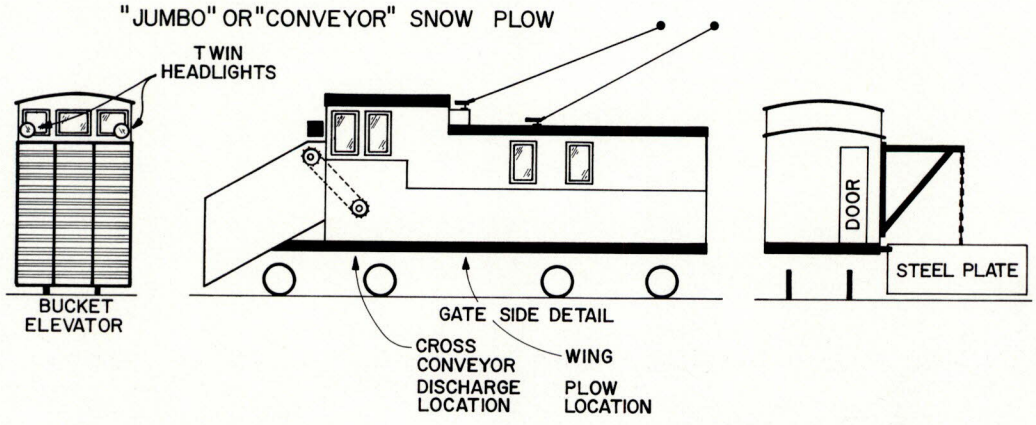
Service Equipment

A company memorandum dated January 2, 1894 stated that the Snow Plows (sic) were 39' long, weighed 33 tons, had four 25 h.p. motors on the trucks, plus six motors for the wings and scoops. This refers to one large "conveyor plow" that was built or first used during the winter of 1893-1894. Company data on this car (called the "Jumbo Plow") as of September, 1899, indicated: two Bemis C.B. trucks (7'6" wheelbase), 4 W.P. 50 motors, TCRT rheostat controller, hand brakes, and weight 64,500 lbs. (1901) or 65,170 lbs. (1899). The entire front end comprised an endless chain with buckets (bucket elevator) which carried the snow back to a cross-conveyor, which dumped the snow to the side of the track; a steel-plate wing plow controlled by a derrick on the "gate" side of the car pushed the snow to the side of the street.

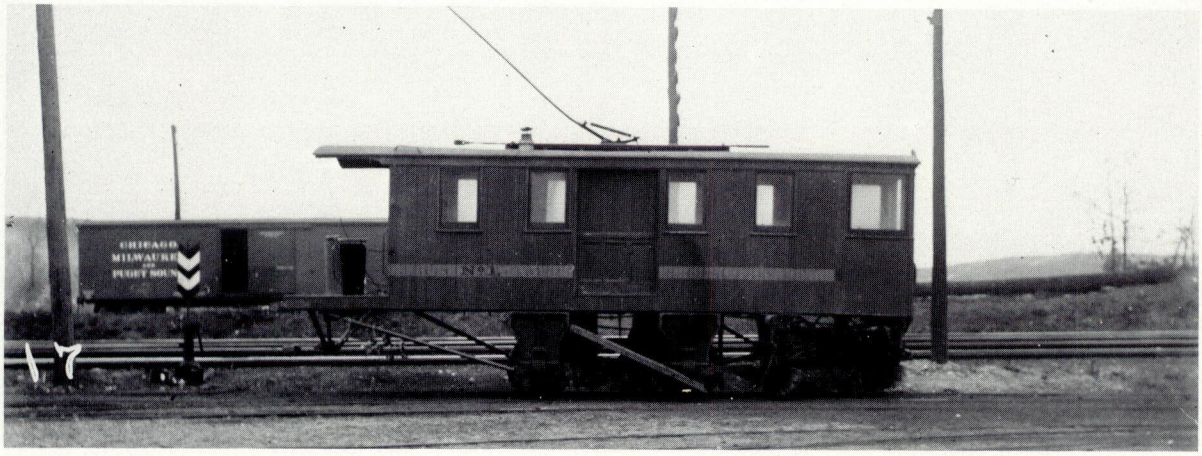
An article dated 1896 stated that the company had 20 Snow Plows of the "pilot" type of which one was a large "conveyor" plow. A newspaper article dated November 16, 1900, reported that 25 heavy Snow Plows were to be added for the winter; cabs with room enough for ten men had been built on each car; the Stillwater line was to get a rotary snow plow. However the 1902 U.S. Census listed 23 Work Cars, 20 Snow Plows, and 1 Snow Sweeper which agreed perfectly with TCRT records as of September 1, 1904.

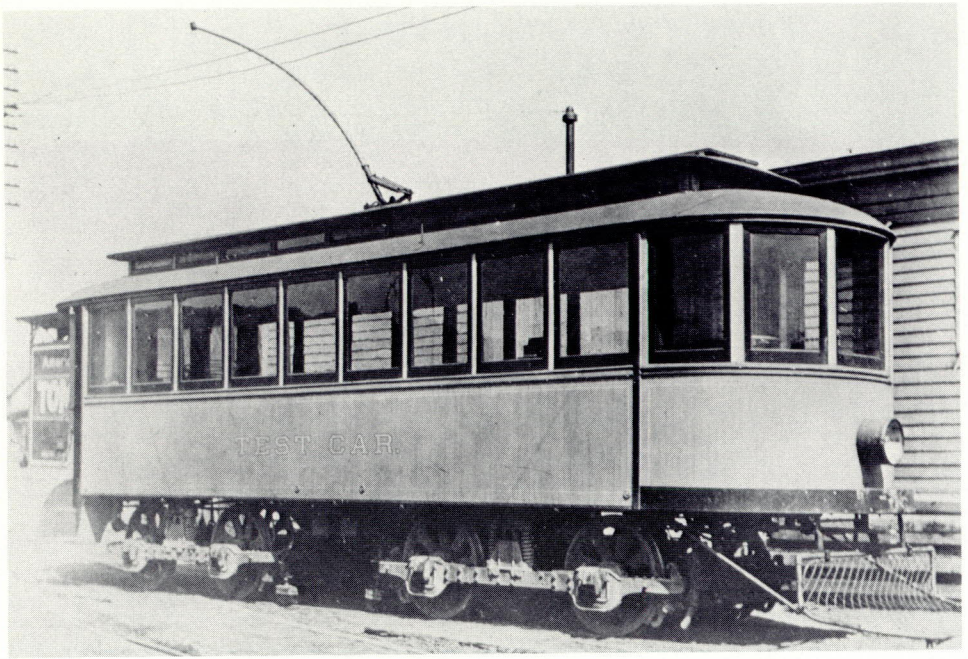
"The North St. Paul Pups"

TCRT acquired the St. Paul & Suburban Ry. (originally the St. Paul & White Bear R.R.) in 1898. Their eight cars, 1-8, were 34' double truck, closed motor cars built by Pullman's Palace Car Co. in 1892. The cars were included in the TCRT number series during 1899 as 789-796. Presumably at this time the front vestibules were rebuilt and the open rear platforms fitted with stationary wire-gates on the open "pole side" and folding wire-gates on the "gate side". They were re-equipped, possibly in 1901, with Bemis M.T. trucks, 2 G.E. W.P. 50 motors and perhaps different controllers. These cars served on Minneapolis local lines operated out of East Side Station.



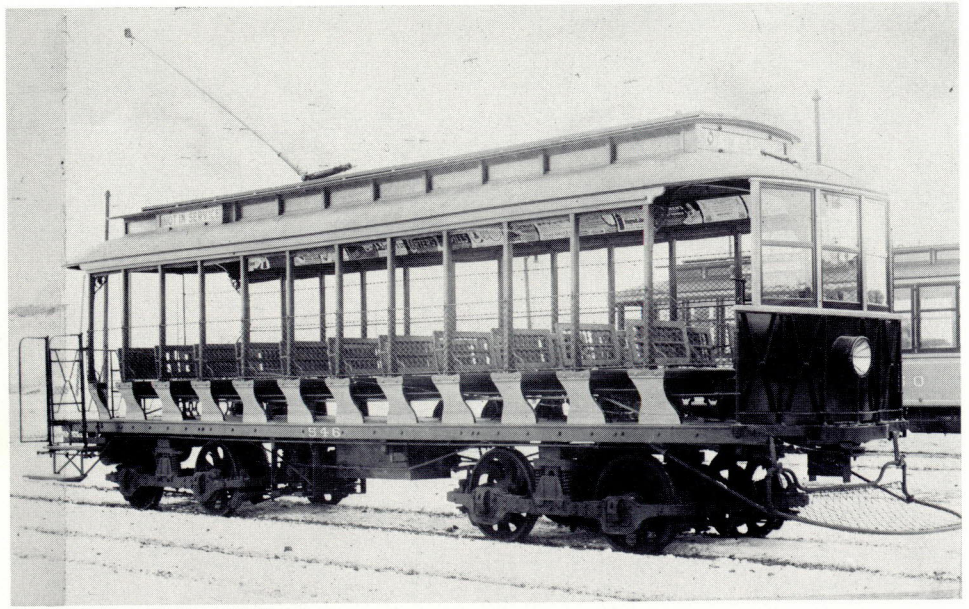
Snow Sweeper 1 at the rear of the 7th St. Station yard, St. Paul. (TCRT)

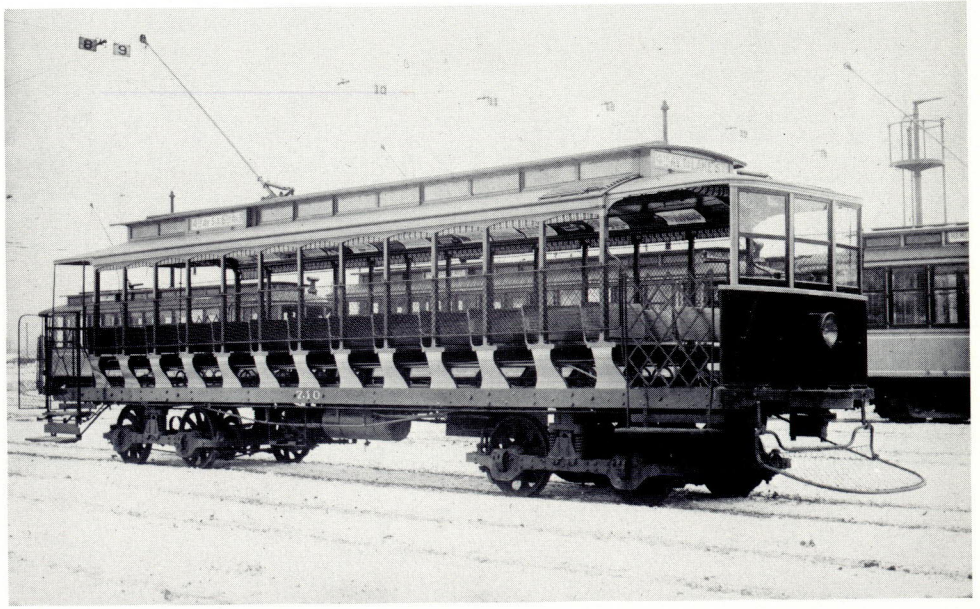




Left: "North St. Paul Pup" 796 in use as a Test Car. A vestibule and #3 step have been installed on the rear platform, and rail contact shoes attached to the truck frames. Taken in 1904 on the yard track in front of the storehouse at the 31st St. Shops. (Minnesota Historical Society collection)

Right: "North St. Paul Pup" 789 on Blaisdell Ave. at the 31st St. Shops, 1904. (Sweet Studios; Robert Bowes collection)





Two views of the double truck open motor cars as fitted with a front dash and equipped with air brakes, K-11 controller, and Bemis C. B. trucks with the two traction motors mounted on the front truck. 546 is on the left and 710 on the right. (TCRT; collections of Robert Bowes and Joe Hutchinson)

Disposition of Equipment, 1893-1904

The old horsecar barn at University Ave. and Kent St. had been used since 1891 to store unused and disabled cars. In 1895 (February 21, 1896 ?) the building was destroyed by fire along with approximately 100 cars. About 50 of these cars were in good condition but were being stored because they were not equipped with front vestibules.

The Smith Ave. carhouse in St. Paul was the scene of another disastrous fire on July 19, 1899, which destroyed the north half of the building along with 40 Open cars and 20 Closed cars.

An article dated February 16, 1900, reported that all open cars were being overhauled; thirty single truck, closed motor cars were being rehabilitated and equipped with front vestibules — they had been purchased new for the electric lines but had been in storage since 1893 because of the financial panic and had never been fitted with vestibules. It was said that they were of the same size as the standard single truck cars but differed in windows, ventilators, and shape and finish of roof.

In 1902 TCRT began to retire the original electric equipment as by this time they had 225 "large" cars out of approximately 600 motor cars. A Minneapolis newspaper article in November, 1902, reported that the company was dumping old cars in a lot near Bryant Ave. So. and 31st St., Minneapolis; people could chop them up for firewood and the company would then burn the remains to get the scrap metal. A description of several cars dumped there was given: 152 was a dumpy green car, a horse car used on Washington Ave. and pulled by two horses. It had wooden seats and was later used as an electric car trailer; 350, one of the first electric cars, lay wrecked and forgotten beside 152. Other cars left to perish were numbered as high as 1546.

In the book, "Streetcar House" by Donald Hough, the author relates how his father built a house at 941 Mahtomedi Ave., Mahtomedi, out of retired streetcar bodies. TCRT was in the process of disposing of the many trailer cars which had been converted from horsecars. The trucks were removed and the bodies dumped and burned wherever a place could be found, and they were running out of places where this could be done without creating either a nuisance or a hazard. His father had asked TCRT for 3 old carbodies, but the company, delighted to get rid of them, built a temporary spur track into the woods off the Mahtomedi line at the East Shore Park stop and promptly delivered ten cars, then more and more until a total of 22 carbodies had been pushed off their trucks alongside the track. His father asked TCRT to take 12 cars back, but in the meantime the trucks were hauled away and the temporary spur track removed. So fifteen bodies were used in building the house and seven were left in the woods of which eventually six were sold to others and one was used for a waiting station at the East Shore Park stop. The cars were delivered in April or May, 1905, and the author describes the interior of a 16' closed body (six windows per side) which contained a LaClede Car Co. builder's plate: red upholstered longitudinal seats, slatted floor composed of oak strips bound by metal bands, cherry wood interior trim, sliding vestibule doors, zinc lined alcove in one end in which stood a conical cast iron stove, and on the opposite side a similar alcove containing the coal bin.

Apparently because of the destruction of the early records by fire, an inventory was taken of all existing original equipment as of September 1, 1904; based on these records the following list was prepared of all passenger equipment disposed of prior to that date.

14' single truck closed motors and 14' closed trailers: all except two, SPCR 135 and 147, were gone. 135 was listed as a 16' trailer, built by Brownell February 1, 1884, converted to a Salter in February, 1904, assigned to East Side Station. 147 was a 14' trailer built by Brownell, converted to a Sander in 1904, assigned to Midway Station.

16' single truck closed motors and 16' closed trailers: all except four, MSR 179, 183, 185 and 195, were gone. The four remaining were listed as 16' trailers built by Pullman August 16, 1886. The first three were converted to Salters during 1903, with 195 listed as a Sander in 1904. 179 was assigned to East Side Station; 183 was the Selby Salter (later at Smith Ave. Station). Both 183 and 185 later became Sanders.

18' single truck closed motors: MSR 363, 365, 367, 368, 371, 372, 374, 379, 380, 386, 388, 391-396, 398, 399, 401, 404-407, 409-411, 415, 418, 420, 422, 454, 455, 464, 477, 478, 484, 488, 493, 496, 502, 504, 506, and 533; SPCR 328-330, 337, 338, 340-343, 346, 348-351, 355, 357, 359-362, 368, 503, 504, 506, 507, 509, 510, 512, 514, 515, 517, 519-526, and 528-537.

22' single truck closed motors: MSR 569, 572, 580, 590, 596, and 597: SPCR 540-566.

41' double truck, vestibuled closed motors: MSR 607, wrecked in a collision with a railroad train.

18' single truck open motors: all disposed of.

24' single truck open motors: MSR 1303, 1304, 1306, 1307, 1309-1312, 1314-1324, 1326-1331, 1333-1334, 1336-1337, 1339, 1341-1342, 1344-1346, 1348-1352, 1354-1355, 1357-1360, and 1362.

34' double truck open motors: MSR 555-568.

27' single truck open motors: MSR 692-706; SPCR 1594, 1596, 1603, 1609, 1612, 1614, 1618, 1619, 1621, 1623, 1625, and 1628.

24' open trailers: MSR 201, 204, 205, 210, 215, 216, 218, 222, 227, 228, 240, 241, 243, 251, 253, 425, 426, 428, 430-433, 436 and 440.

25' open trailers: SPCR 199 and 213.

16' closed cable trailers: SPCR 304, 306, 311, 312, 314, 317-321, and 324-327.

Equipment Data from the September 1, 1904 Inventory

A brief summarization of selected data on the remaining cars in each car order as of the inventory date follows. The quantity of cars remaining in each order is given, with the individual car numbers accounted for in the section on their disposition.

Single truck, open trailers with straight platforms, cross seats, and rear exits with no gates: SPCR 199-216 = 16 cars, SPCR 217-235 = 19 cars, and SPCR 236-245 = 10 cars.

Single truck, open trailers with longitudinal seats and rear exits with no gates: MSR 201-232 = 22 cars, MSR 233-262 = 25 cars, and MSR 423-442 = 11 cars.

Single truck, closed trailers with straight platforms, longitudinal seats, front and rear exits with no gates: SPCR 303-317 = 9 cars, and SPCR 318-327 = 2 cars (322 and 323).

The single truck, closed motor cars had hand brakes, longitudinal seats and rear exits with single gates. Electrical and mechanical equipment as of 1904 on each series was as follows.

SPCR 328-369, 21 cars: one Bemis truck and two Sprague motors. 335, 344 and 358 were double end vestibuled; 358 received two K-11 controllers in 1905 and 2 SRG motors in 1906.

MSR 363-422, 29 cars: one Bemis truck and 2 Sprague motors. 373, 376, 384, 389, 400, 414, 416, 417, 419 and 421 were double end vestibuled. 385 was listed as the 31st St. Wrecker, the seats having been removed.

MSR 443-502, 50 cars: one Bemis truck and 2 SRG motors, except 474, 481, 482, 491, 494, 500 and 501 which had 2 Sprague motors.

MSR 503-538, 33 cars: one Bemis truck and two Sprague motors.

SPCR 503-539, 9 cars (511, 518, 527, 1505, 1508, 1513, 1516, 1538, 1539): one Bemis truck and two Sprague motors.

MSR 284: one Bemis truck and two SRG motors.

MSR 569-606, 32 cars: one Bemis truck and two Sprague motors.

SPCR 567-569, 3 cars: one Bemis truck and two Sprague motors.

The single truck, open motor cars had hand brakes, cross seats, and rear exits with single gates.

MSR 1303-1362, 13 cars (listed as 26' long): one Bemis truck and two Sprague motors.

MSR 627-691, 65 cars: one Bemis truck and two Sprague motors, except 627, 628, 631, 633, 646, 651, 655, 657, 658, 661, 666, 673, 674, 678, 680 and 683 which had two SRG motors. 687 was listed as "exits rear double end".

SPCR 1570-1634, 53 cars: one Bemis truck and two Sprague motors. 1595, 1605, 1616, and 1620 were listed as "exits rear double end".

The double truck, open motor cars all had hand brakes, cross seats, and rear exits with single gates. All were still in service.

540-547, 549-551, 11 cars: as of 1901 were 37'0" long, 7'10½" wide, weighed 25,800 lbs., and were equipped with two Bemis M.T. trucks, two Thomson-Houston W.P. 50 motors (both on the front truck), and TCRT rheostat controller. By 1904 a K-11 controller had been installed on all cars and the width was listed as 7'8".

707-731, 25 cars: as of 1901 were 41'7" long, 8'3" wide, weighed 26,500 lbs., and were equipped with two Bemis M.T. trucks, two Thomson-Houston W.P. 50 motors (both on the rear truck), and TCRT rheostat controller. By 1904 a K-11 controller had been installed on all cars, and the weight listed as 27,750 lbs.

Double truck, vestibuled, closed motor cars 607-626 had the front gates and steps removed about 1896 or 1897, which were replaced with a hinged swing-door so the front vestibule was occupied by the motorman only. As of September, 1899, the cars were equipped with two Bemis M.T. trucks, two Thomson-Houston W.P. 50 motors, TCRT controller and weighed 31,000 lbs. In 1900 it was decided to rebuild the cars to conform as nearly as possible with TCRT's standard design then in production. This work involved installing double sash body windows, changing the seating to seven rows of cross seats at the front with longitudinal seats to the rear, and upgrading the mechanical and electrical equipment. By March, 1901, 610-612, 614, 616, 619, 621, 622, 624, and 625 had been completed; completion dates on the remaining cars are not known. Equipment consisted of Brill (Old) trucks, four W.P. 50 motors, K-6 controller, hand brakes; rebuilt cars weighed 41,500 lbs. and unrebuilt cars 41,700 lbs. During 1902 and 1903 all the cars were equipped with Christensen air brakes and whistles. As of 1904 the 19 remaining cars had the same equipment, but were also listed as having straight front and rear platforms, Baker heaters and weighed 43,000 lbs. When TCRT developed a class designation system these cars were assigned first place: Class A-3-h.

The four "Windsplitters", 732-735, were still in service, each listed with wood underframe, straight platforms, rear exits with single gates, Baker heater, longitudinal seats, hand brakes, two Bemis trucks, two G.E. 57 motors, and K-11 controller.

The "North St. Paul Pups", 789-796, were all in service. They had wood underframes, rear exits with single gates (some exceptions are listed below), longitudinal seats, hand brakes and two Bemis trucks. Electrical equipment varied from car to car. According to the 1904 inventory this was the situation.

789: four W.P. 50 motors and K-6 controller.

790: two SRG 25 (h.p.?) motors.

791-792: two W.P. 50 motors.

793: two SRG motors; no gates.

794: two SRG 25 (h.p.?) motors.

795: two Sprague 15 (h.p.?) motors; exits front and rear; repaired for loan to St. Louis Park line — delivered September 10, 1904 and returned October 1, 1904.

796: Test Car — two SRG 25 (h.p.?) motors, K-11 special controller, weight 27,300 lbs., and gates = door.

Service Equipment

No further information has been located that provides an explanation of all the additions and disposals between 1893 and 1902. The 1904 inventory was identical to that in the 1902 U.S. Census and is summarized following. **20 Snow Plows**

1 "Mogul": built by TCRT; 25'8" long, 6'10" wide, two Bemis trucks, four T-H W.P. 50 motors, hand brakes, with four Sprague motors on the rotary plow.

2-20: built by TCRT: vestibuled front end, 25'8" long, 6'10" wide, wood underframe, two Bemis trucks (5'6" wheelbase), four T-H W.P. 50 motors, TCRT controller, hand brakes, and weight 44,000 lbs. 18 was listed as having a K-6 controller. 20 was used at the new Main Steam Station for switching railroad coal cars and for such service received Christensen automatic air brakes on June 12, 1903.

1 Snow Sweeper

1: built by McGuire-Cummings Mfg. Co., 28'3" long, 7'2" wide, one McGuire truck (33" wheels), two T-H W.P. 50 motors, and one SRG motor for the broom. Assigned to the Smith Ave. carhouse, St. Paul.

23 Work Cars

Oil car 1: built by TCRT, 22'6" long, one Bemis truck, two T-H W.P. 50 motors, and hand brakes.

Wire Cars 1-2: built by TCRT, one Bemis truck, two Sprague motors, rheostat controller, and hand brakes. 2 received SRG motors in 1909. 1 was assigned to East Side Station (Mpls.) and 2 to Owen St. Station (Stillwater).

Supply Car 1: built by Mpls. St. Ry. December, 1891; 24' long, single truck, two motors.

Supply Car 2: this was the double truck, vestibuled, closed test car built in 1892 by Northern Car Co. for the Northwest Thomson-Houston Co. The record card carries a rebuilding date of May 8, 1903. Two Bemis trucks, T-H W.P. 50 motors (4?), and K-6 controller.

Wreckers 1-3: built by TCRT, 20'4" long, one Bemis truck, two SRG motors (3 had two Sprague motors) and K-11 controllers (installed 1905 on 1 and 2; 3 had no controller listed). 1 was assigned to East Side Station, 2 to Midway carhouse and 3 to Smith Ave. carhouse.

Work Cars 1-2: one Bemis truck; 1 had two Sprague (15 h.p.) motors and 2 had two SRG (20 h.p.) motors.

Work Cars 3-4: 22'0" long, one Bemis truck; 3 had two SRG motors while 4 had two Sprague motors.

Work Cars 5-6: 35'0" long, 8'9" wide, two Bemis trucks (5'8" wheelbase), and two T-H W.P. 50 motors.

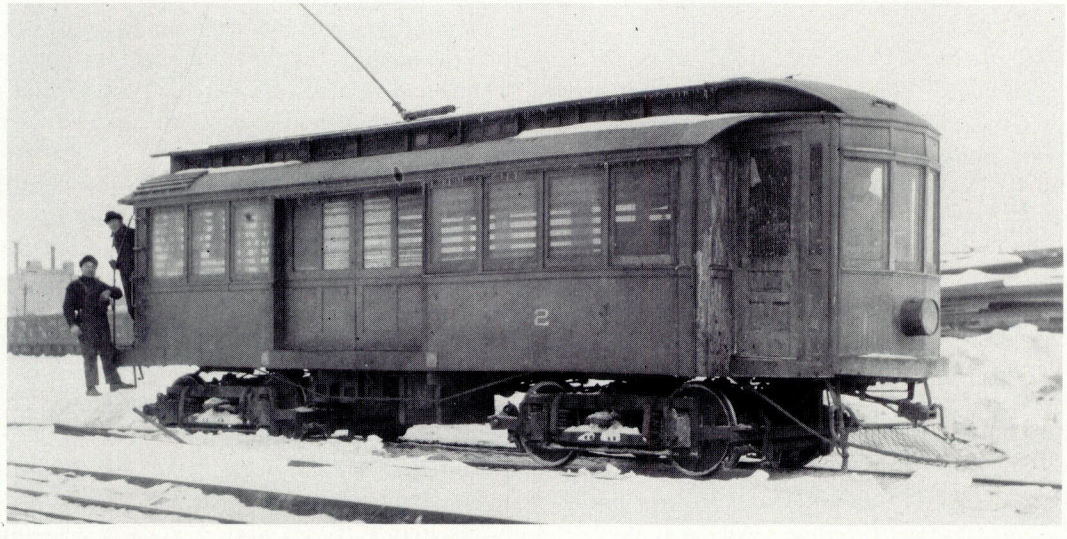
Flat Trailers 1-5 and 7: one Bemis truck.

Wood Shop Trailer 6: 22'0" long, 6'6" wide, and one Bemis truck.

Work Car Trailer 10: 26'6" long, 6'2" wide, and one Bemis truck.

Wood Shop Trailer 12: one Bemis truck. Assigned to 31st St. Shops.

It should be noted that each class of service equipment had its own number series. This method was used subsequently on new construction until about 1907 when it was decided to have only one number series for all service cars. At that time, due to scrapping of many of these early cars, the remaining cars were neatly fitted into the new system.



The test car built by Northern Car Co. in 1892 for the Northwest Thomson-Houston Co. after it had been rebuilt into a Supply Car by TCRT. This car may have been the "whaleback" used in servicing the company-owned resort and amusement facilities. (TCRT)

Disposition of the Remaining Original Electric Equipment

1904

Rebuilding: 793 was rebuilt during May into a Supply Car.

Retirements: Scrapped: MSR 203, 206, 208, 211, 212, 214, 217, 220, 221, 223, 229-232, 236, 237, 239, 242, 248, 252, 254 and 439.

Wrecked: SPCR 1538.

Sold: MSR 250.

Given complete to University of Minnesota: MSR 487.

1905

Rebuilding: 732 and 734 received two T-H W.P. 50 motors in place of the two G.E. 57 motors.

MSR 448, 452, 470, 471, 473, 490 and 495 to Sand Cars during November and December. Data sheets indicate: 27'6" long overall, 18'7" long body, 4'5½" platforms, 7'8" wide, weight 16,500 lbs., one Bemis truck, two SRG (20 h.p.) motors, 14:67 gear ratio, and rheostat controller.

MSR 449 during December to Electric Dept. Cable Car.

MSR 492 to Roundhouse Switcher, date and year not listed.

Used as Wreckers (date and year not listed): MSR 1364, 385, 469, 494, 526 and 530.

790 during October to Electric Dept. Supply Car with two Bemis C.B. trucks, four SRG motors and K-6 controller.

794 in June to a Shop Flat with two Bemis trucks, two T-H W.P. 50 motors, and K-6 controller. It was later re-numbered 42.

MSR 505, 509, 510, 513, 516, 524, 536, 538, 1511, 1523, 1529 and 1534 during October and November for double end operation (double end vestibuled). Data sheets indicate: 27'6" long overall, 10'6" high, wood underframe with 4" drop platform, weight 18,840 lbs., capacity 75 persons, 1 Bemis truck, two SRG (20 h.p.) motors, two K-11 controllers, and hand brakes. 1529 was again numbered 529 in March, 1912, due to new car construction causing conflicting numbers. These cars were normally used on the Robbinsdale and Camden extension lines operated from 31st St. Station and on the Ft. Snelling spur line operated from Snelling Station. Recorded uses were: 505, 510, 513 and 516 operated from 31st St. Station; 509 used at Ft. Snelling until 1912; 538 used at Ft. Snelling until March, 1911; the body was then in poor condition; 1511 was assigned to Owen St. Station, Stillwater, in 1905; 1534 was used on the Camden extension.

Retirements:

Scrapped: 791, 792 and 795.

Scrapped: MSR 389, 416, 481, 512; SPCR 147 and 242.

Given to Alderman Walker: MSR 381.

Sold to Fargo & Moorhead St. Ry. (complete): MSR 225, 226, 235, 238, 244-247, 256-258, 260-262, 466, 476, 480, 687 and 688.

Sold to Danville St. Ry. & Lt. Co. (bodies only): MSR 383, 474 and SPCR 354.

Sold to Kansas City-Leavenworth line (complete): MSR 444, 450, 459, 461, 489 and 499.

Sold to Terre Haute, Ind. (complete): MSR 584, 586 and 589.

Sold to ? (complete): MSR 573-575, 578 and 600.

1906

Rebuilding:

To Storehouse Switcher in May: MSR 447.

To Track Dept. flat trailers in March, April, July and September: MSR 233, 423, 424, 427, 429, 434, 435, 438, 441, 442; SPCR 210, 214 and 234.

To Baggage Car in April: MSR 789. At a later date it was used as a Switch Car and re-numbered 41; at this time it was equipped with two Bemis trucks, two T-H W.P. 50 motors, and K-6 controller.

Rebuilt for use on South Stillwater line, completed December 22nd: MSR 733. The car received 8" drop rear platform, double gates, railroad style pilot, four G.E. 70 motors, K-28 controller, and G.E. air brakes. The Bemis trucks were apparently retained.

Retirements: An article dated June 3rd stated that North Side St. Ry., Robbinsdale, had purchased four large double truck cars from TCRT to replace two cars now in service that were to be retired. TCRT records show that MSR 732 and 734 were sold to North Side St. Ry. May 29, 1906, for $1250 each but were never delivered.

Scrapped: SPCR 135, 1505; MSR 179, 421, 456, 462, 592 and 628.

Destroyed: SPCR 527.

Sold to Fargo & Moorhead St. Ry.: MSR 207, 213, 219, 224, 638, 639, 651, 675; SPCR 1591, 1592 and 1629.

Sold to Interstate Traction Co.: SPCR 221, 226, 229 and 239-241.

Sold to R.L. Costigan: MSR 376, SPCR 1571, 1579, 1582, 1605 and 1611.

Sold to Oskaloosa: SPCR 224, 230 and 245.

Sold to Butte, Mont.: MSR 1366, 375, 382, 390; SPCR 334, 336, 352, 353, 363 and 366.

Sold: MSR 249 and 255.

Sold to Nebraska: MSR 419 and SPCR 1620.

Given away for cottage on White Bear Lake: MSR 605.

Sold to Boise, Idaho: SPCR 333 and 1590.

Sold to Kankakee, Ill.: SPCR 367; MSR 486 and 576.

Sold to Devil's Lake & Chautauqua Transfer: MSR 595; SPCR 1602 and 1607.

Sold to J.B. Watson of Philadelphia: MSR 689, 690; SPCR 1573, 1575, 1576, 1583(*), 1587 and 1624. (*) The record card lists it as sold but this car number also appears on a list of cars to be scrapped on July 24, 1911.

1907

Rebuilding: To Snelling Mill Shop Switch Car (date and year not listed): MSR 571.

Retirements:

Scrapped: MSR 385, 492; Snow Plow 20.

Destroyed by fire in Robbinsdale: MSR 1511.

Sold to R.L. Costigan: SPCR 1577; MSR 647, 659 and 684.

Sold to Butte, Mont.: SPCR 331; MSR 377, 387 and 402.

Sold: MSR 408, 413, 640, 686; SPCR 339.

Sold to Boise, Idaho: SPCR 364 and MSR 472.

Sold to St. Cloud, Minn.: MSR 570, 577, 579 and 581.

1908

Rebuilding: Open Cars 540-547, 549-551, 707-712, 714-731 were equipped with G.E. air brakes in June. 713 had been equipped with air brakes in 1907.

Retirements:

Scrapped: SPCR 233, 236, 238, 307 (horsecar skeleton used to haul coal at East Side Sta.), 345, 347, 358, 1570, 1574, 1588, 1593, 1597, 1599, 1600, 1608, 1615, 1622, 1627, 1632-1634; MSR 202, 209, 234, 1369, 370, 423, 424, 427, 437, 451, 458, 475, 482, 491, 501, 519, 520, 531, 1532, 588, 601, 627, 630, 631, 633, 642, 643, 646, 649, 650, 654, 656, 661, 662, 664, 667-669, 673, 676, 678, 680-683; Snow Plows 1, 3, 5-12, 15, 17, 19 and Work Cars 2-6.

Sold to Marshalltown, Ia.: SPCR 518.

Sold: SPCR 1513, 1539; MSR 378, 403, 412, 457, 460, 463, 479, 498, 522, 634-636, 663, 666, 670 and 677.

Waiting Station at Inver Grove: SPCR 305.

Given to B.H. Scriber by Mr. Pevear: SPCR 322.

1909

Retirements:

Sold to A.E. Partridge: MSR 629, 645, 653, and 665.

Sold to Grand Forks, N.D.: SPCR 1610, 1613, 1626 and 1630.

Scrapped: SPCR 207, 1580, 1604, 1616, 1617; MSR 400, 445, 485, 1535, 599, 637, 652, 658, 674 and 793 (Supply Car); Snow Plow 2.

1910

Rebuilding:

Ash Car in January: SPCR 202.

Scrap Cars in April: SPCR 212 and 222.

Coal Car at Smith Ave. carhouse in April: MSR 195.

Track Dept. Work Cars in May: Snow Plows 4 and 14.

Rail Grinder in January: Snow Plow 18.

Retirements:

Sold to Aberdeen (S.D.) St. R.R.: Snow Plow 16.

Scrapped: MSR 443, 447, 449, 452, 453 and 525.

Destroyed by fire: Wire Car 1. (Boys playing in the car turned the controller on and left it on with the car's brakes being set!)

Sold to Texas R.R.: SPCR 344; MSR 373 and 384.

Sold to Mankato Electric Traction Co.: MSR 414.

Sold to individual in Stillwater, Minn.: MSR 517.

Sold to International Transit Co. (Sault Ste. Marie, Mich.): SPCR 567-569.

1911

Rebuilding: Rail Grinder in May: Snow Plow 13.

Retirements:

Sold to Aberdeen (S.D.) St. R.R.: SPCR 203, 205, 303, 308, 1601 and 1631.

Sold to Mankato Electric Traction Co.: MSR 526 (used as the Smith Ave. Wrecker) and 587.

Scrapped: SPCR 202, 206, 208, 209, 211, 216, 217-220, 231, 235, 243, 244, 309, 310, 313, 315, 316, 323, 332, 335, 356, 365, 369, 511, 1516, 1584-1586, 1589, 1595, 1606; MSR 183, 185, 195, 1305, 1313, 1356, 1361, 1364, 397, 417, 465, 483, 497, 500, 508, 515, 528, 1518, 1523, 1527, 536-538, 593, 606, 632, 641, 648, 655, 657, 660, 671, 679, and 732-735.

1912

Rebuilding:

Supply Car 2 was rebuilt with Brill 27A-2 trucks, air brakes, electric heaters, and sliding door to motorman's cab, completed April 19th.

Snow Plows 13 and 14 were rebuilt into Work Cars A-13 and A-14 during March. Data as rebuilt: 25'6½" long (cab 6'7"), 7'8½" wide, wooden underframe, two Bemis trucks (5'1¾" wheelbase), four G.E. W.P. (25 h.p.) motors, 17:64 gear ratio, K-6 controller on A-13 and K-14 controller on A-14. In subsequent years, A-13 received a weed cutter on the front end while A-14 was equipped with a 1000 gallon tank for use in sprinkling calcium chloride.

Retirements:

A special effort was made to eliminate all the remaining original equipment.

Disposition not recorded: SPCR 222.

Scrapped: SPCR 200, 201, 204, 210, 212, 214, 215, 223, 225, 227, 228, 232, 234, 237, 1508, 1572, 1578, 1581, 1598; MSR 233, 259, 284, 1308, 1325, 1332, 1335, 1338, 1340, 1343, 1347, 1353, 429, 434, 435, 438, 441, 442, 446, 467-469, 470, 471, 473, 490, 494, 495, 503, 505, 507, 509, 510, 513, 514, 516, 521, 524, 529, 530, 1534, 571, 582, 583, 585, 591, 594, 598, 602-604, 644, 672, 685 and 691; MSR 790 and 796; Snow Plows 4 and 18, Sweeper 1, Oil Car 1, Wire Car 2, Wreckers 1-3, Work Car 1, Flat Trailers 1-5 and 7, Wood Shop Trailers 6 and 12, and Work Car Trailer 10.

1913

Retirements:

Scrapped: MSR 540-547, 549-551 and 707-731.

Sold to Great Northern Ry. complete: MSR 448. This was the last single truck passenger car to be operated by TCRT. It was shipped April 22, 1913 to the GN Ry. in Superior, Wisc., where it was placed in service as a shuttle car for company employees.

1914

Retirements:

Scrapped: Shop Flat 42 (ex-MSR 794).

Sold: 608-626 had been removed from service June 23, 1910 and placed in storage at the 31st St. roundhouse. They were placed back in service during November, 1910, on the "8th Ave. S. & Emerson" line operating out of Lake St. Station. Later all were again placed in storage at the roundhouse. On June 1, 1914, all were transferred to the Snelling Shops storage shed. An advertisement for their sale was placed in the Electric Railway Journal. Sold in June to the Kansas City, Kaw Valley & Western R.R. were 611, 614, 615 and 617. In October 608, 609, 618 and 619 went to the Kanawha Traction & Electric Co., Parkersburg, W. Va.

1915

Retirements: sold to the Charles City Western Ry., Charles City, Ia.: 621

1916

Retirements:

Destroyed: Switch Car 41 (ex-MSR 789).

Sold to the Kansas City Western Ry.: 610, 622 and 623.

1917

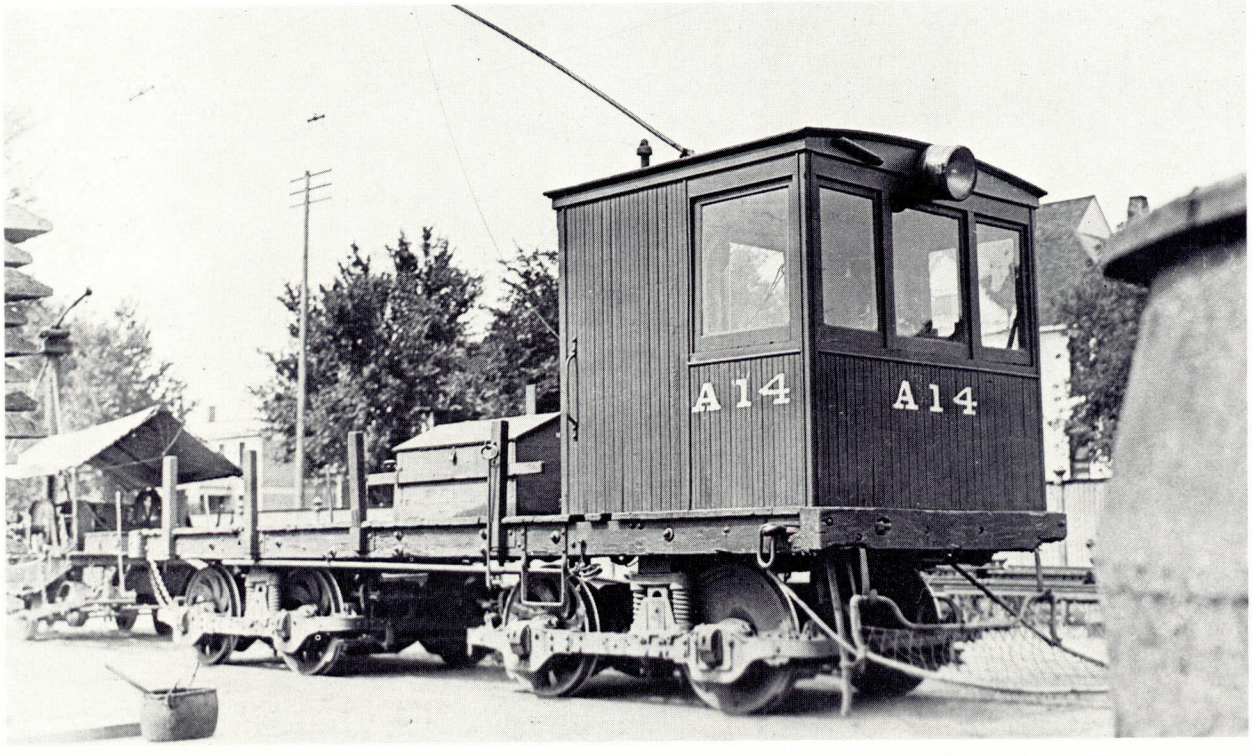
Retirements: sold to the Kansas City, Merriam & Shawnee Ry. (Kansas City, Lawrence & Topeka Ry.): 613, 616 and 620.

1925

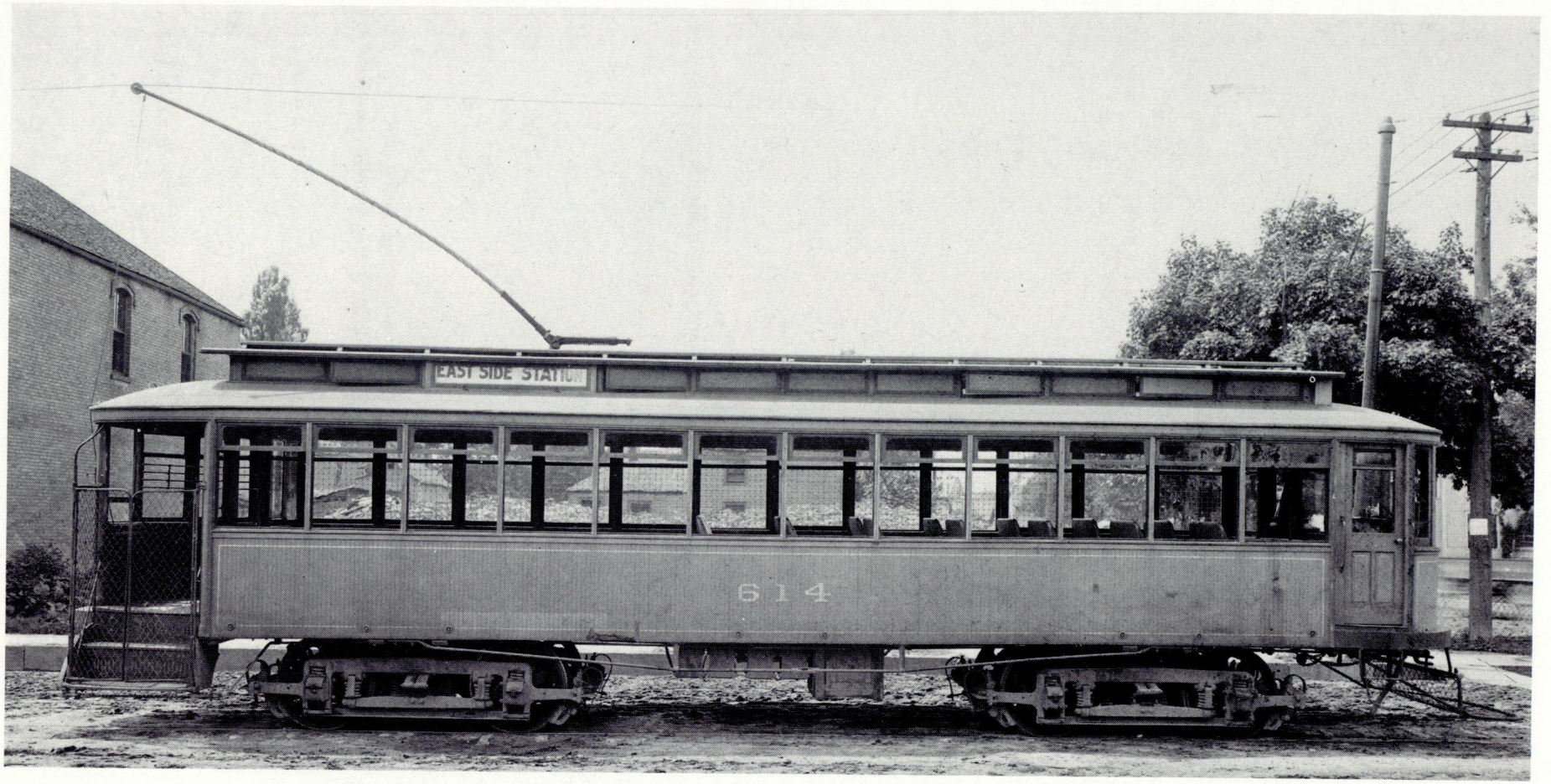
The storage shed at the Snelling Shops was destroyed by fire August 17th. Among the cars lost in the fire were: horsecar relic SPCR 1, 612, 624-626, Work Car A-14, and Supply Cars 1 and 2.

1936

Dismantled and burned: Work Car A-13.



Work Car A14 (with Rail Grinder 39 or 40) in the Track Dept. yard at Nicollet Station, Minneapolis. With what little evidence exists, it seems that original Snow Plows 2-20 had the basic appearance of this car. (TCRT; Ken Fletcher collection)



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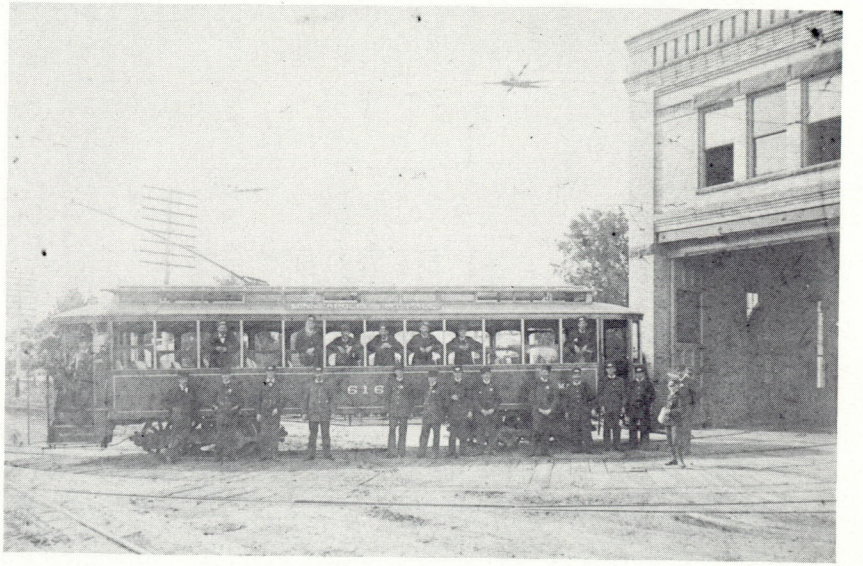
Right: MSR 616 at the Midway carhouse, St. Paul, probably in the late 1890's, showing the car with single sash windows, one pair of wire gates on the rear step, and front exit replaced by a motorman's cab door. (Joe Hutchinson collection)

Above: MSR 614 on University N.E. at East Side Station, Minneapolis, 1904, as finally rebuilt with upgraded mechanical and electrical equipment. Trucks are Brill 27A-1 "Brill (old)". (Sweet Studios; Robert Bowes collection)

Facing Page

Overall view of the erecting shop, looking toward the east, at the 31st St. Shops, Minneapolis. Three tracks of cars under construction are on the left; the fourth track holds MSR motor car 528, MSR trailer 195, and newly completed 739. The sixth track contains two single truck "double end vestibuled" motor cars with a closed trailer in between. (Sweet Studios; Robert Bowes Collection)



Cars Built in Company Shops

This complicated subject is difficult to present in a simple manner. TCRT went through several design development periods intertwined with considerable experimentation, resulting in extensive rebuilding and modification programs. A flexible method of changing electrical and mechanical equipment among the cars at will was used extensively over the years.

Consequently this chapter will be divided into several sections.

1. Car Building Programs, listing the car numbers and dates built (in chronological order), original car type classification, and original electrical and mechanical equipment. Following this is an explanation of the car type classifications with descriptions of various construction features.
2. Rebuilding and Modification Programs, listing the car numbers and dates rebuilt (in chronological order), rebuilt car type classifications, and explanatory details and descriptions.
3. Shifting of Electrical and Mechanical Equipment among cars.
4. Rehabilitation and Maintenance Programs.
5. Disposition of Cars (in chronological order).

1. Car Building Programs

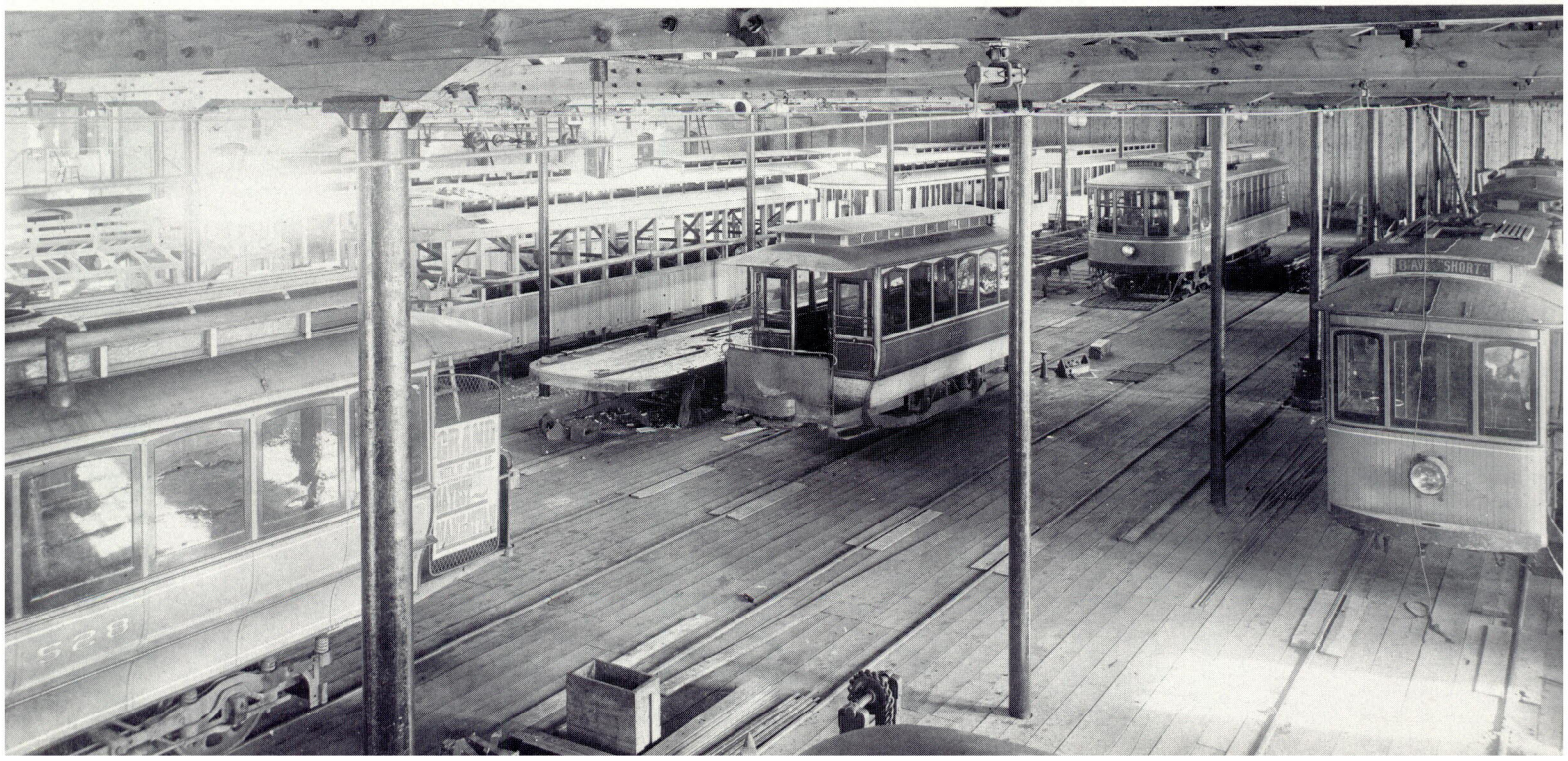
A carbuilding shop was completed in April, 1898, at the 31st St. and Nicollet Ave. property in Minneapolis. Three cars were then constructed.

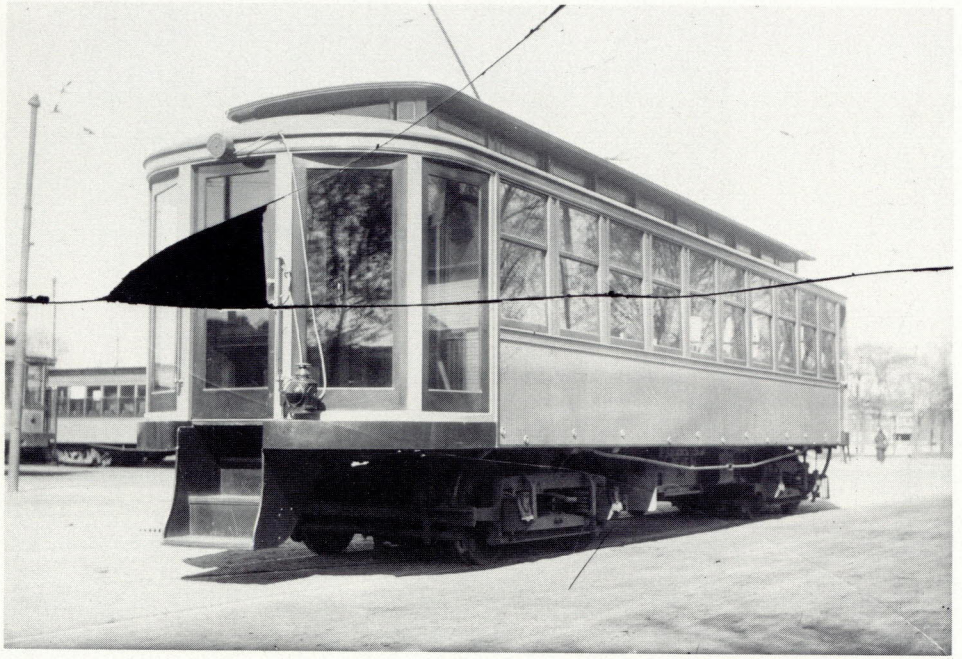
1 car: Thomas Lowry's Private Car, May, 1898; Class: Private Car. Records do not indicate a car number and photographs show that no numbers were painted on the car. However the number 736 is unaccounted for and presumably was reserved for this car. The original equipment is unknown but was probably two Bemis M.T. trucks, two G.E. W.P. 50 motors, TCRT rheostat controller, and hand brakes.

2 cars: 737-738, 1898; Class B-3. TCRT's 1898 Annual Report stated that after every effort had been made to have a car manufactured to meet its requirements, it built two cars in its own shops during 1898 and placed them in service. They proved so satisfactory that the construction of more cars was decided upon. The design was engineered by W.M. Brown, employed by TCRT for the previous seven years, the last three as Master Mechanic. The car was 41'7" long, plus a 9" thick buffing timber on the front (as on 607-626) for an overall length of 42'4"; it weighed 17 tons, seated 49 persons (or 51 persons if the hot water heater, located in the car body proper, was removed), and was equipped with two Bemis M.T. trucks, two G.E. W.P. 50 motors, TCRT rheostat controller, and hand brakes.

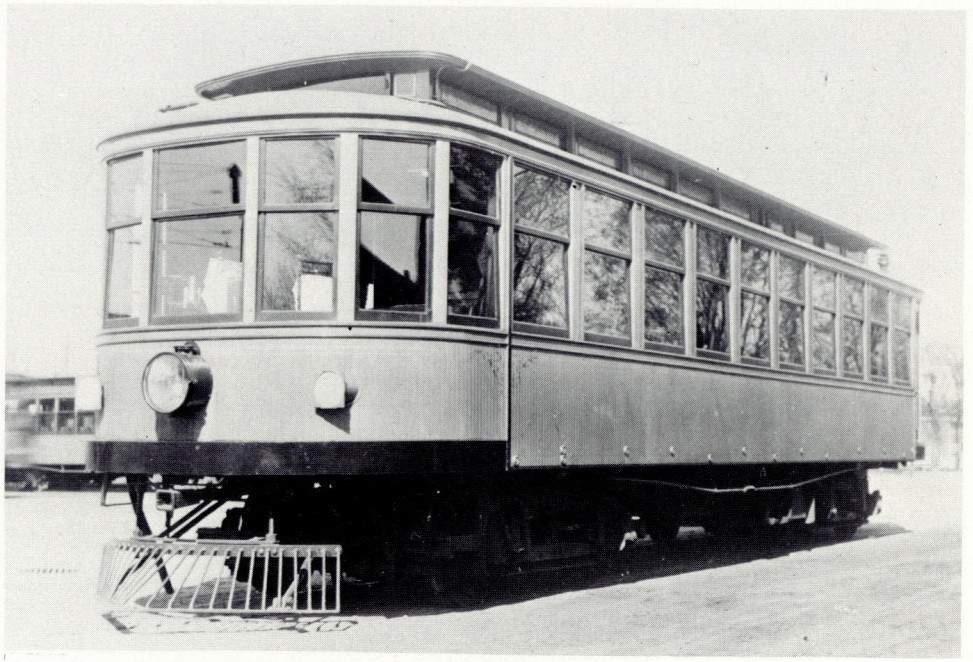
Twenty additional cars were next constructed, followed immediately by fourteen more. Subsequent TCRT records carry completion dates in September, 1898, on 737-738, concurrently with completion of the first cars of the twenty car order. These two cars were definitely completed earlier in 1898 as the annual report states; photographs suggest the two cars went through the shops again for minor modifications necessary for conformity with the cars then under construction.

All of the subsequent car orders are listed chronologically in the following tables, except those for the Duluth St. Ry. which are listed in the equipment chapter of that company's history.



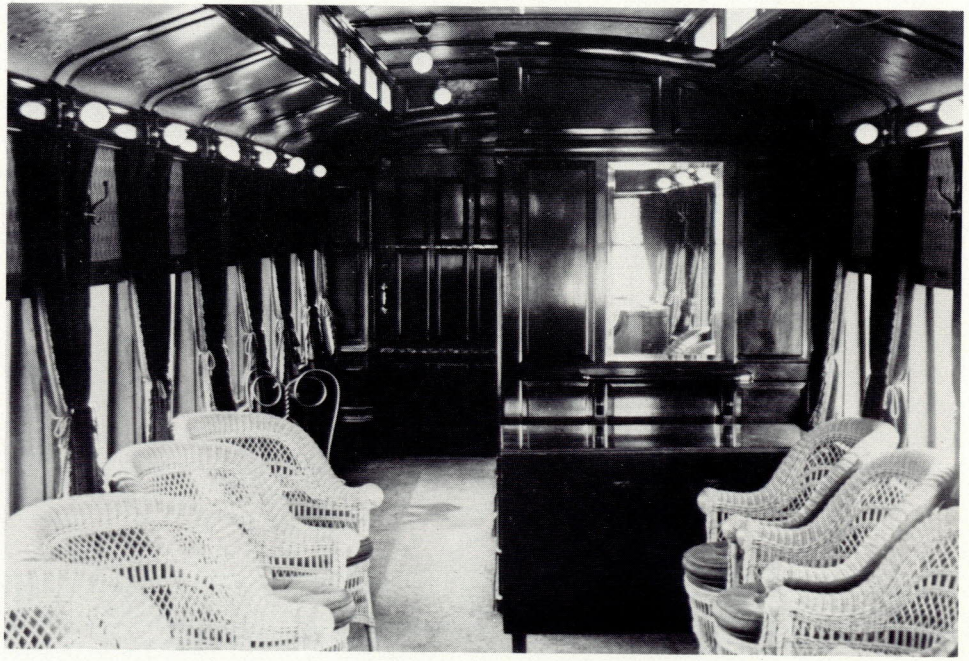


Rear view of the Private Car from the "gate side", printed from a broken glass plate negative. All of the plate glass windows on the rear platform, door included, were of one piece for better visibility. The car was reported entertaining visitors (July 30-31, 1899), opening the Stillwater line (August 21, 1899), and used by President McKinley during his visit to the Twin Cities in 1901. (TCRT)

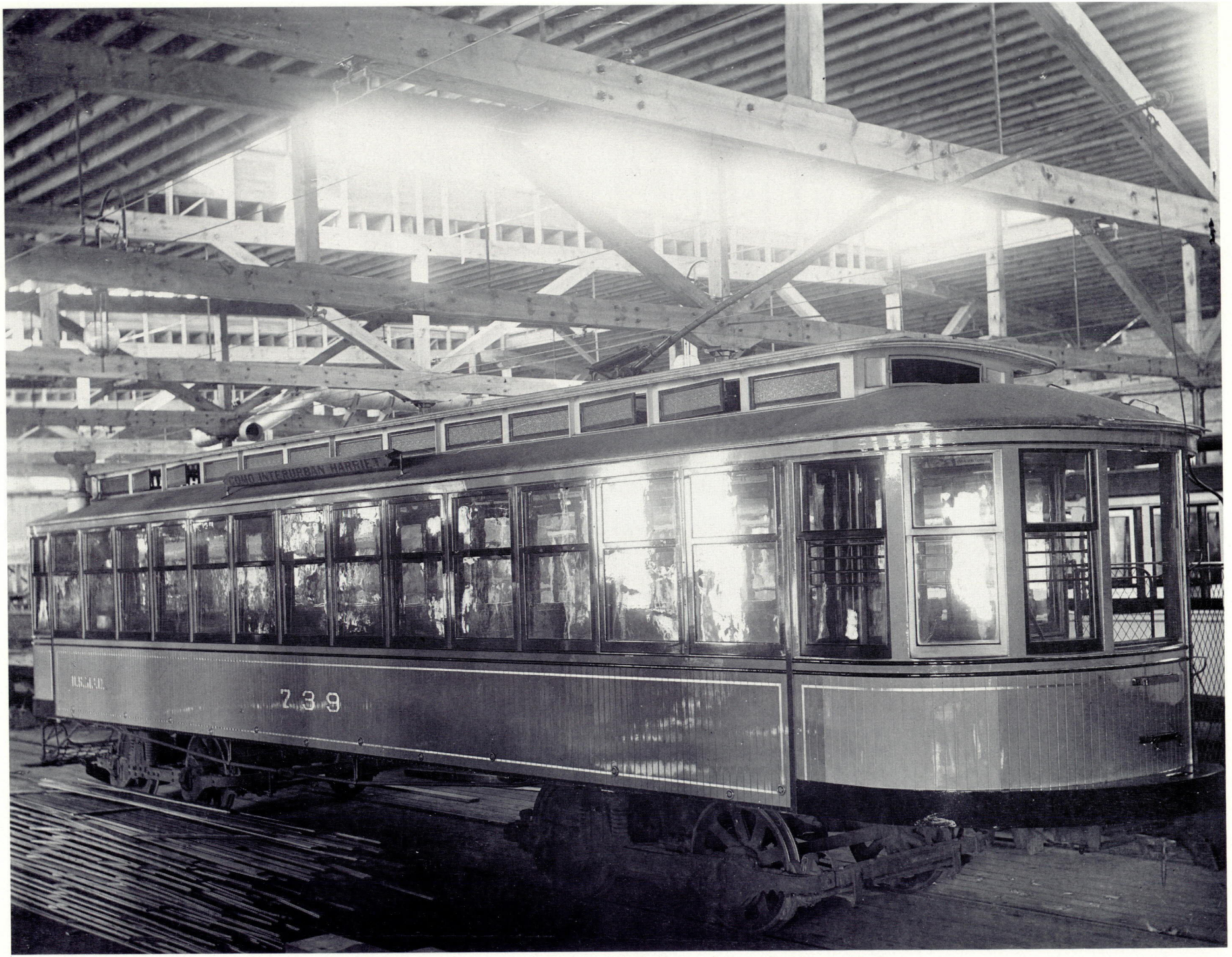


Front view of the Private Car from the "pole side". (TCRT)

Interior of the Private Car, looking toward the front. There was no bulkhead door to the motorman's cab. (TCRT)



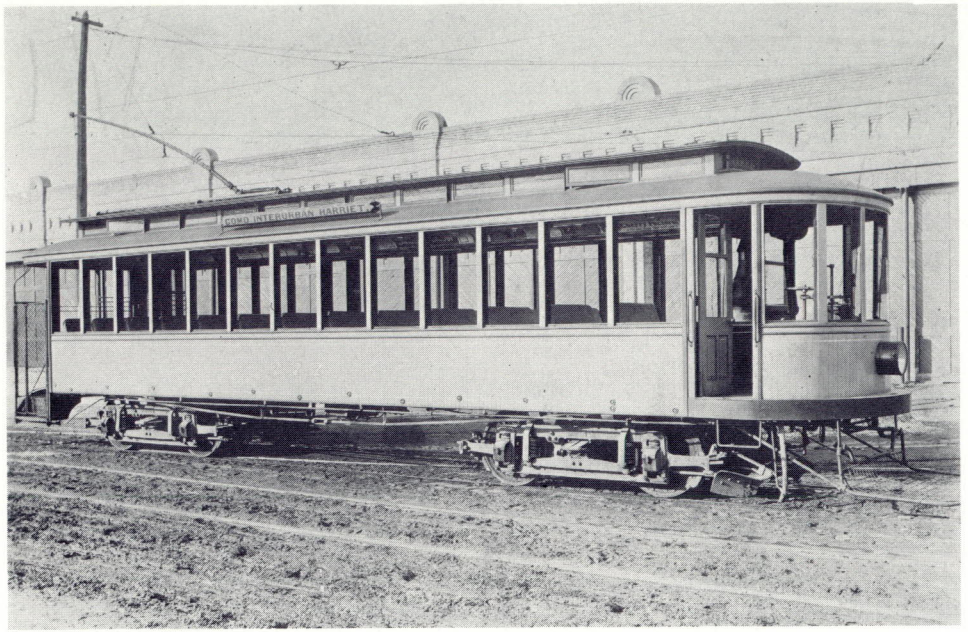
Interior of the Private Car, looking toward the rear. The compartmented area at the right contained a complete kitchen (front) and a toilet (rear). The inlaid door at the left



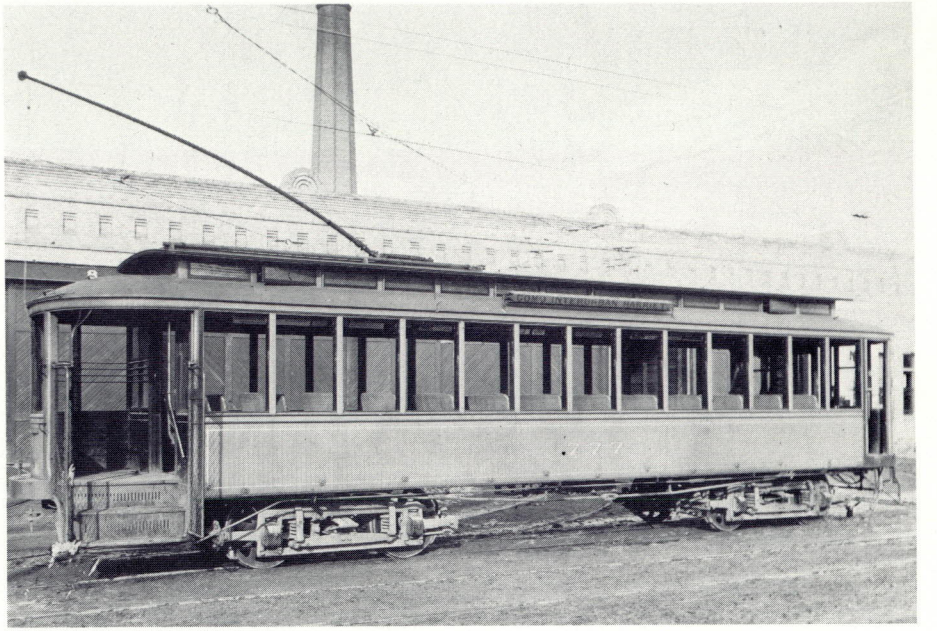
Car 739, the first completed of the initial building program authorization, freshly varnished, has its photograph taken inside the erecting shop building at the 31st St. Shops. The Bemis M. T. trucks each have one traction motor mounted on the forward axle, which has solid wheels, while the unpowered axles have spoked wheels. (Sweet Studios; Robert Bowes collection)

CARS BUILT IN THE 31st STREET SHOPS, MINNEAPOLIS, 1898-1907

Cars	Car Numbers	Completion Dates	Classification	Trucks No.	Trucks Type	Motors No.	Motors Type	Gear Ratio	Controller	Weight in Lbs.	Notes
20	739-758	Sept.-Dec. 1898	B-3	2	Bemis M.T.	2	G.E. W.P. 50	17:64	TCRT Rheostat	18 Tons	2
14	759-772	January 1, 1899	B-3	2	Brill (Old)	2	G.E. 57		K-11	40056	3
16	773-788	June-Sept. 1899	B-3	2	Brill (Old)	4	G.E. 57	28:57	K-14	46720	4
				2	Brill (Old)	2	G.E. 57		K-11	40056	
1	797	Sept. 1899	B-3								5
19	798-816	June-Aug. 1900	B-3	2	Twin City	4	G.E. 67		K-6	39594 41140	5
15	817-831	July-Aug. 1900	B-3	2	Twin City	4	G.E. W.P. 50		K-6	42166 43686	
28	832-859	Aug.-Oct. 1900	B-3	2	Twin City	4	G.E. 67		K-6	40370	6
20	833-844, 860-867	April, 1901	B-3	2	Brill 01	4	G.E. 67	15:69	K-6	42900	
32	868-899	Feb.-Sept. 1901	C-3	2	Bemis M.T.	2	G.E. W.P. 50		TCRT Rheostat	30500	7
						2	G.E. 57		K-11	31066	7
50	900-949	May-Nov. 1902	B-3	2	Brill 02	4	G.E. 67	15:69	K-6	42600	8
2	950-951	April-May 1903	B-5	2	Brill 03	4	G.E. 67	17:64	K-6	46500	9
40	952-991	May-Sept. 1903	D-7	2	Brill 03	4	G.E. 67		K-6	43600	
50	992-1041	April-June 1904	D-4	2	Brill 04	4	G.E. 70	15:71	K-28	47300	
1	1092	July, 1904	E-4 Double Deck	2	Brill 04	4	G.E. 57			52000	10
4	7-10	November, 1904	Work Car	2	Twin City Work Car	4	G.E. 70	15:71	K-6	39280	11
1	25	November, 1904	Snowplow	2	Bemis C.B.	4	G.E. 57	28:57	K-14	37000	12
38	1042-1079	Nov. 1904-Feb. 1905	E-4	2	Baldwin #1	4	G.E. 70	15:71	K-28	46700	13
12	1043, 1080-1090	Feb.-Mar. 1905	E-4	2	Baldwin #1	4	G.E. 70	15:71	K-28	46700	
6	11-12	April, 1905	Work Car	2	Twin City Work Car	4	G.E. 57	28:57	K-14	42600	14
	13-16	April, 1905	Work Car	2	Twin City Work Car	4	G.E. 70		K-6	40300	15
20	1091, 1093-1111	April-June 1905	E-4	2	Baldwin #1	4	G.E. 70	15:71	K-28	47300	
3	3-5	May & Aug. 1905	Wire Car	2	Twin City	4	G.E. 57	28:57	K-14	59000	16
12	1112-1123	August, 1905	F-4	2	Baldwin #2	4	G.E. 73	24:51	C-6 Type M	59000	17
21	1124-1144	Sept.-Nov. 1905	F-4	2	Baldwin #1	4	G.E. 70	15:71	K-28-A	46700	18
1	34	November, 1905	Baggage Car	2	Baldwin #4	4	G.E. 57	28:57	K-14	54540	19
1	22	February, 1906	Snowplow	2	Baldwin #4	4	G.E. 73	17:73	C-6 Type M	65400	
1	1145	May, 1906	G-6 Double Deck	2	Baldwin #2	4	G.E. 73	24:51	C-6 Type M		20
50	1146-1195	May-Aug. 1906	G-6	2	Baldwin #4	4	G.E. 87		C-6-K Type M		21
25	1196-1220	Sept.-Dec. 1906	G-6	2	Baldwin #5	4	G.E. 70	15:71	K-28-B	49600	
2	23-24	January, 1907	Snowplow-sweeper	2	Baldwin #4	4	G.E. 73	17:73	C-6 (two) Type M	75400	22
25	1221-1245	Feb.-April, 1907	H-6	2	Baldwin #5	4	G.E. 70	15:71	K-28-B	49000	
3	17-19	June-July, 1907	Work Car	2	Twin City Work Car	4	G.E. 70	15:71	K-28-B	41100	23
20	1246-1259	May-Aug., 1907	H-6	2	Baldwin #5	4	G.E. 70	15:71	K-28-B	49000	
	1260-1265	May-Aug., 1907	H-6	2	Baldwin #4	4	G.E. 73	21:54	C-6-K Type M	58900	
1	20	August, 1907	Locomotive	2	Baldwin #4	4	G.E. 57	16:69	K-6	78500	24
1	21	August, 1907	Wrecker-Crane	2	Baldwin #4	4	G.E. 216	17:69	K-37	78600	25

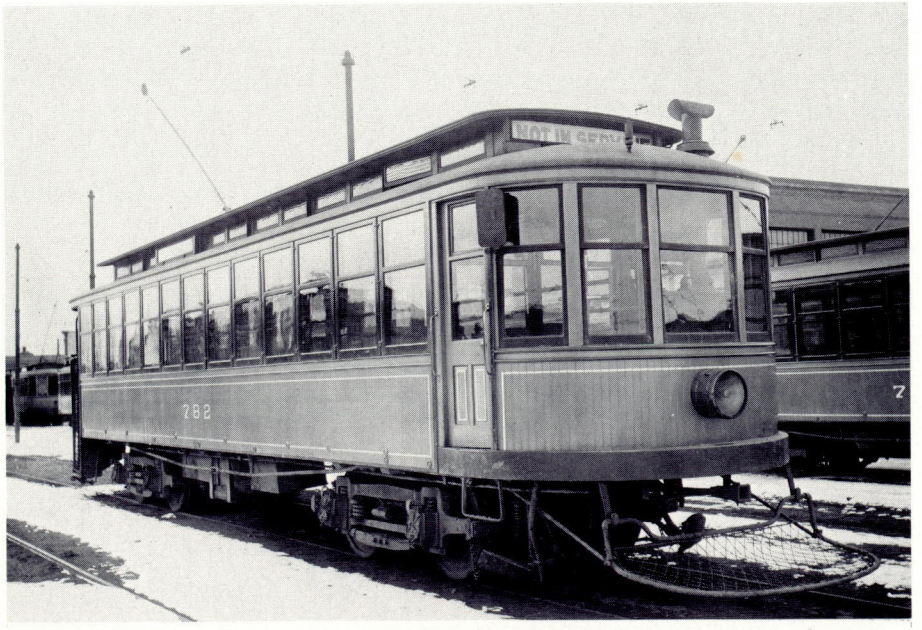


Front view of Class B-3 car 777 as designed for summer operation. The window sash were stored in body sidewall pockets. Note the hot water heater is located in the car body proper; it was later relocated to the motorman's cab. Trucks are Brill 27A-2, with scrapers on the front truck, all unmentioned in available company records.

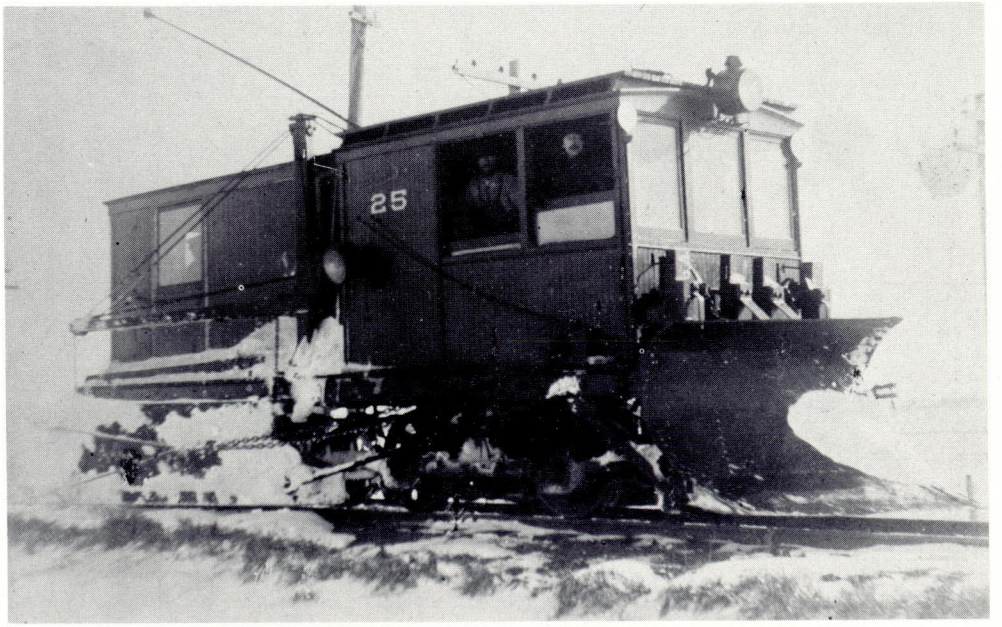


Rear view of car 777; note the straight rear platform, transverse seats, and offset rear bulkhead door. The glass destination sign in the deck roof reads "Harriet"; the side destination sign on the car roof reads "Como-Interurban-Harriet" (on another face, in different colors, "Minnehaha Falls" can be discerned).

Both photographs were taken in 1899 at the 31st St. Station, Minneapolis. (TCRT; Robert Bowes collection)



Class B-5 car 782 with Twin City trucks, #5 step and double gates as it appeared about 1912-1913 after its days on the Stillwater Division were over. Note the storm sash on the windows, a feature of all company built cars. (Mansfield & Norstrom; Robert Bowes collection)



Snow Plow 25 in operation on the Stillwater Division. Note the roof platform for working on the overhead trolley wire. (H. E. Callander collection)

Notes

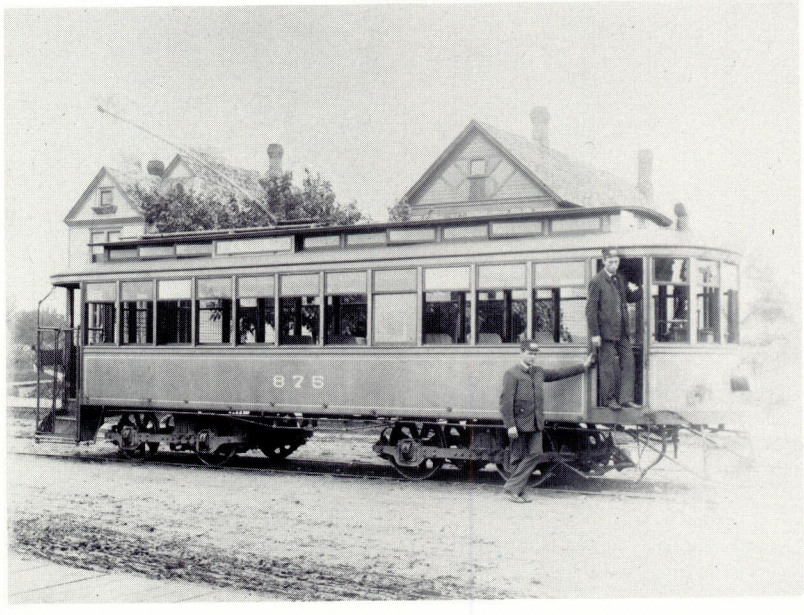
1.

Motor Type	H.P.	Motor Type	H.P.
G.E. 67	38	G.E. 57	50
G.E. 70	40	G.E. 73	75
		G.E. 87	60

2. It is not known whether this equipment was new or from double truck open cars going into winter storage. The entire order of cars was placed on the newly opened "Como-Interurban-Harriet" line.
3. The equipment may have been the same as on the previous order of cars, or the new equipment listed may have been installed when built, in March, 1899, or by September, 1899. This order of cars was placed on the "8th Ave. S. & Central" line, Minneapolis, and "Selby Ave." line, St. Paul.
4. Most of the cars in this order were equipped with the four-motor equipment for use on the "St. Paul & Stillwater" suburban line, geared for top speed of 44 m.p.h., and were the first and only cars with air brakes at this time.
5. The order was for twenty cars, 797-816, and the wooden parts were manufactured and assembled during 1899. However the iron and steel parts, together with trucks and motors, could not be obtained until 1900. One car, 797, was able to be completed and placed in service during 1899, using spare equipment.
6. It was announced August 27, 1900, that the Duluth St. Ry. was to receive new cars from TCRT. Cars 833-844 then under construction were selected to become DSR 151-162. Consequently the Brill (Old) trucks from twelve cars of the 773-788 series were placed under other cars and replaced with the Twin City trucks from 833-844 (DSR 151-162) which then received new Brill 01 trucks. The remaining cars of the order were placed on important Minneapolis lines such as "4th Ave. So.", "1st Ave. So." and North Side lines.
7. The equipment for these cars came from older cars that were being upgraded electrically and mechanically. The reason for building these shorter cars was that TCRT felt large cars were not needed on all lines. Most of this order first went into service in St. Paul on the "7th St." and "Grand & Lafayette" lines. 868-872 were used on the Stillwater local lines.
8. This was the second group of cars to be equipped with air brakes; all subsequent car orders specified air brakes. These cars were assigned to the "Interurban" and "Como-Interurban-Harriet" lines.
9. These were experimental cars, the first with double rear gates and wider steps plus bulkhead door to the front platform (all previous cars had none).
10. This car was completed before work was begun on an earlier order for cars 1042-1091; it was a standard car modified for use as a double deck car in sightseeing service.
11. As built 7 and 9 had four G.E. W.P. 50 motors; 8 and 10 had four G.E. 67 motors. Capacity was 14.6 cubic yards.
12. This car was probably numbered 21 when built and re-numbered 25 about 1907 when one service equipment number series was adopted. It was subsequently equipped with a platform on the roof for service as a snow plow-wire car on the Stillwater Division assigned to Owen St. Station.
13. 1057, 1059-1076 were completed in 1904, and 1042-1056, 1058, 1077-1079 in 1905. Car 1043 was sold upon completion in February, 1905, to the Duluth St. Ry. as their 178.
14. Both were subsequently fitted with electric classification lights and railroad-style pilots; 11 was assigned to Owen St. Station for the Stillwater Division, and 12 at 31st St. Station for the Lake Minnetonka Division. Later on, K-37 controllers were installed. Capacity was 16.25 cu. yds.
15. As built these cars had four G.E. 67 motors. Capacity was 16.35 cu. yds.
16. This may not be the original equipment. All cars subsequently received a K-37 controller. The revolving line tower was raised by compressed air using an Allis-Chalmers AA-6 compressor and Ingersoll-Rand Imperial Hoist air motor.
17. These were the first cars with steel underframes, fabricated for TCRT by the American Bridge Co. This entire order was built for the "Lake Minnetonka" line; 1116, 1117, and 1118, in that order, were the first cars to open the newly completed line in September.
18. This order was built for the "Como-Harriet" line, with cars 1143-1144 fitted for use in the "Como-Hopkins" srrvice.
19. Built for the "Lake Minnetonka" line, it entered regular service during 1906. This may not be the original equipment. The number 34 was not assigned until several years later; the original number is unknown.
20. This car was used on the "Lake Minnetonka" line during the summer of 1906 for about three weeks, leaving 6th St. and Hennepin Ave. for Excelsior at 6:04 A.M. and every two hours until 10:04 P.M. During the summer of 1907 double deck cars (1092 and 1145) were again used on the "Lake Minnetonka" line. Fears arose that the cars were top heavy as most of the passengers wanted to ride upstairs. The heavy weight increased wear on the track and overhead requiring extra maintenance; one source reported that the trolley wire had to be raised which in turn created problems for the standard cars. The difficulty and expense of maintaining the line for passage of

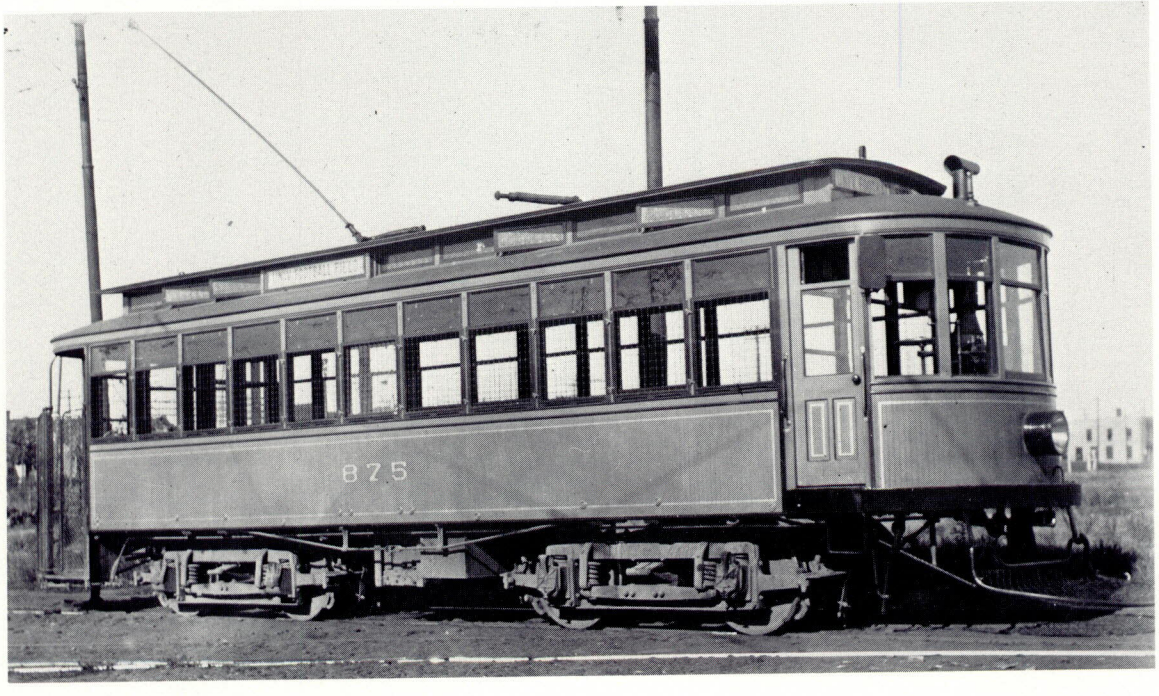
both standard and double deck cars soon brought the experiments to an end.

21. TCRT reported they were planning to convert thirty cars to the double deck type, but all fifty of these cars were constructed with eventual double-decking in mind as the same heavy construction used on 1145 was applied to these cars. Many were assigned to the newly opened "Selby-Lake" interurban line where they were geared for 35 m.p.h. Still faster gearing was used on other cars which were assigned to the "Lake Minnetonka" line as it was intended to have enough cars to provide for two minute headway on Sundays, with additional cars of this group used as trailers.
22. The sweeper broom was powered by one G.E. 70 motor controlled by an R-17 or K-28 controller.
23. Capacity was 15.75 cu. yds.
24. This locomotive was equipped only for third-rail current collection at the Main Steam Station, Minneapolis. The total weight included 34,300 lbs. of ballast. It was subsequently equipped with Twin City #7 Work Car trucks and a K-37-A controller.
25. This was not the original electrical and mechanical equipment on the car; a later data sheet also indicates the weight was 87,400 pounds. The crane, of Bay City Industrial Works manufacture, was operated by two G.E. 7½ h.p. motors, each controlled by one R-28 controller; capacity was 30,000 lbs.

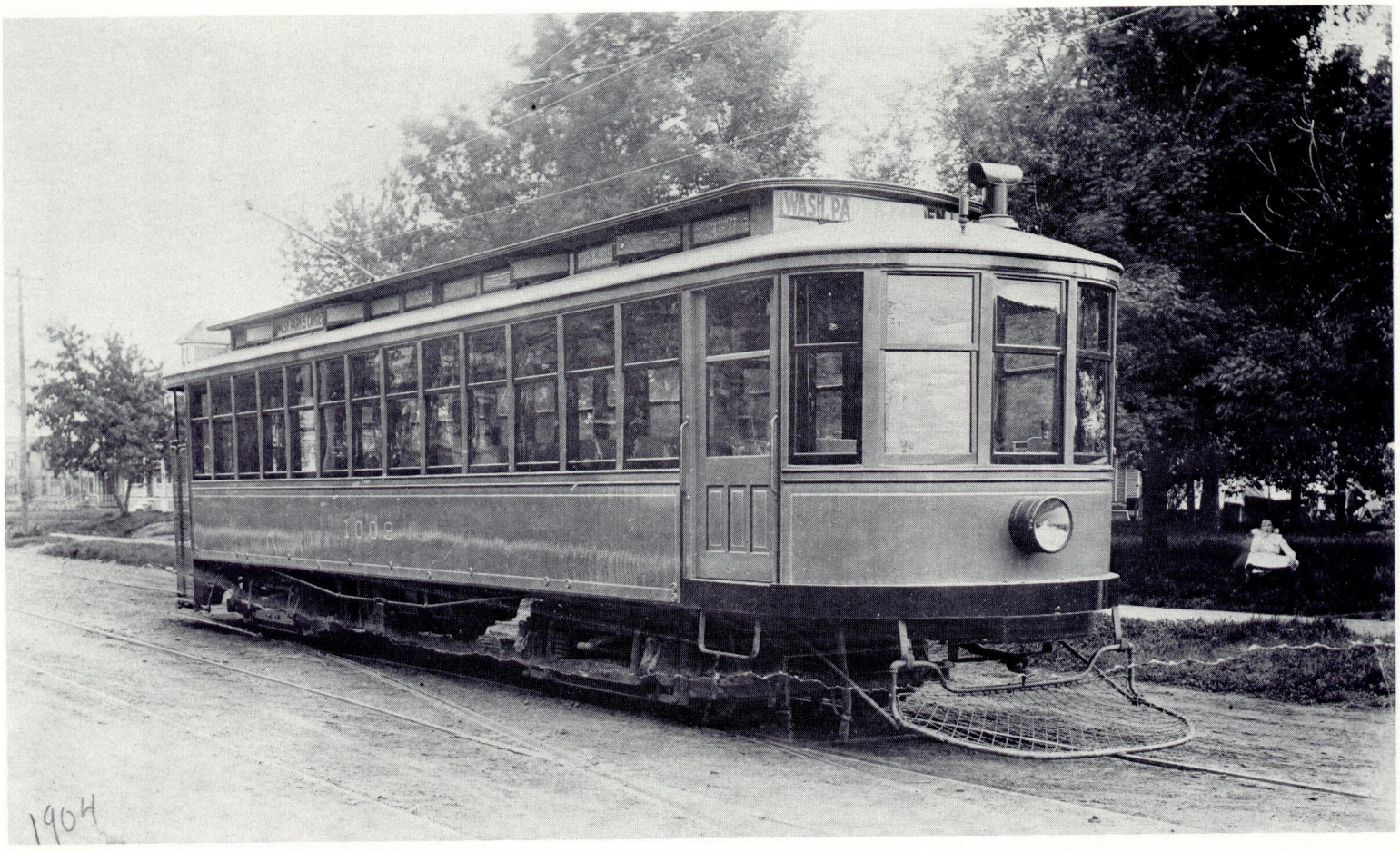


Right: Class C-3 car 875 on the "Laf. & Groveland Park" line ("Lafayette & Grand"), St. Paul, equipped with Bemis M. T. trucks. (H. E. Callander collection)

Below: A better view of a Class C-3 car as rebuilt to Class C-5, temporarily used in double end operation. (TCRT)

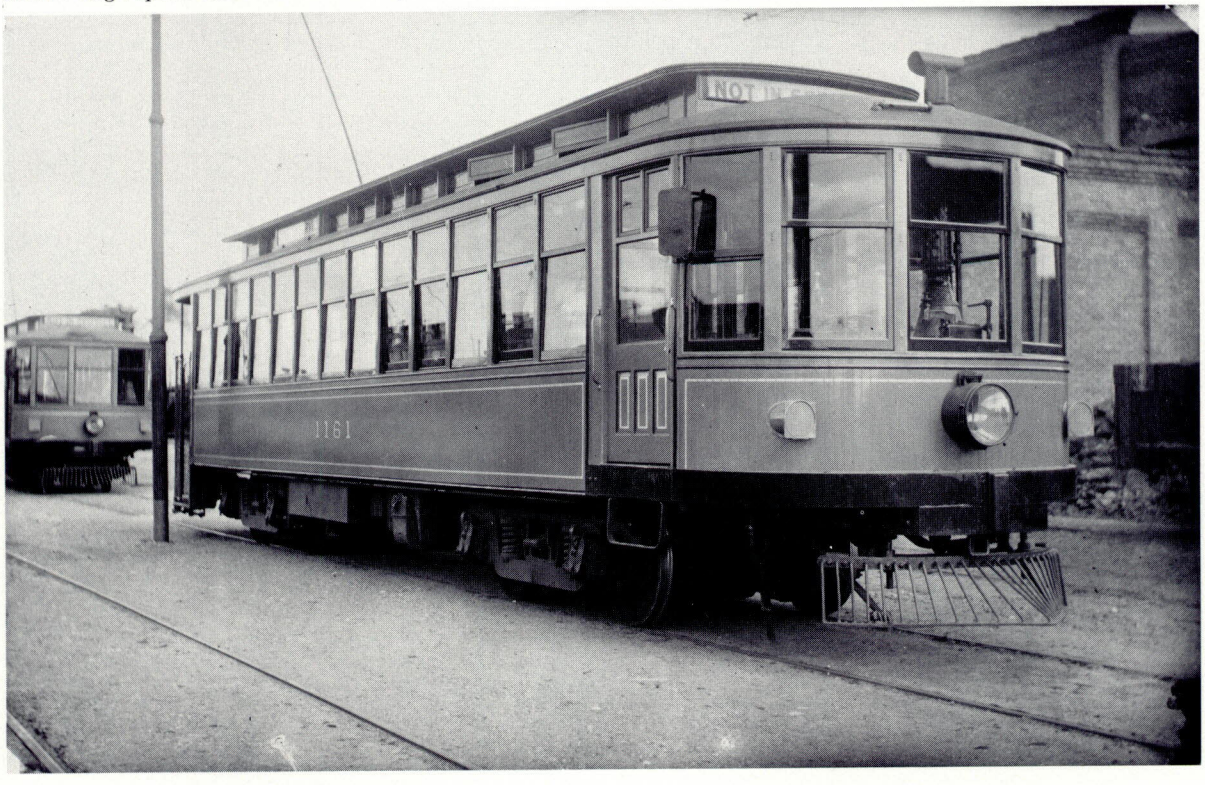


Class D-7 car 969 poses for a builder's photograph on Blaisdell Ave. at the 31st St. Shops, Minneapolis. (Sweet Studios; Robert Bowes collection)



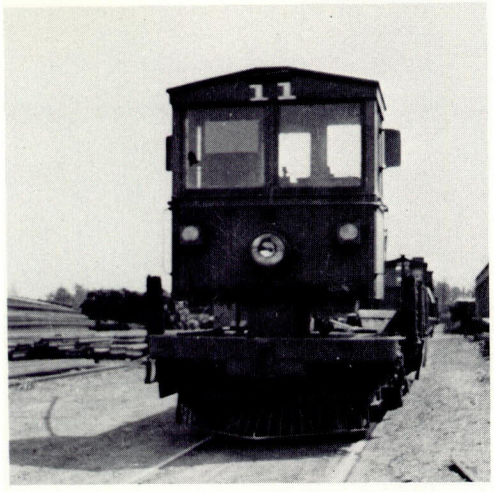
Above: Class D-4 car 1009 photographed upon completion in 1904 on Nicollet Ave. in front of the 31st St. Station. Destination sign reads "Wash. Park & Camden". (TCRT; Robert Bowes collection)

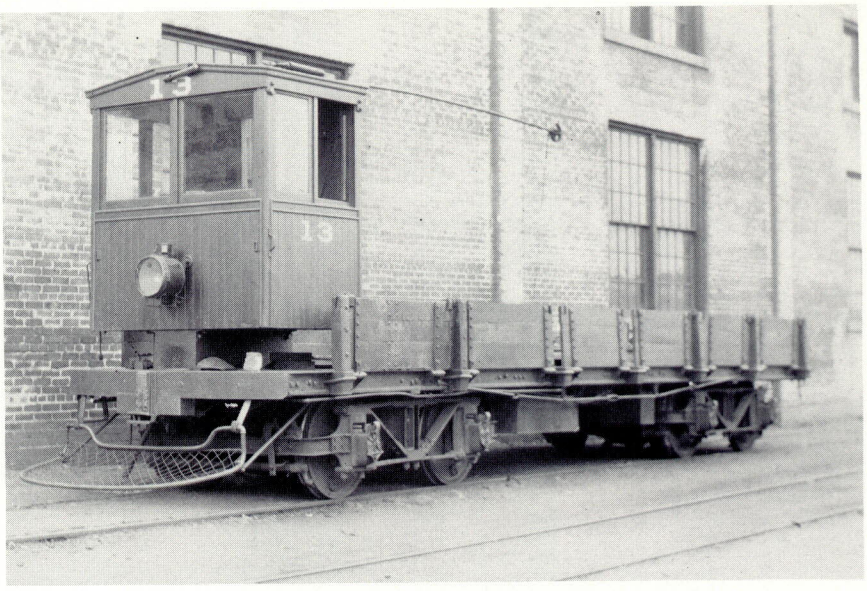
Below: High-speed Suburban car 1161, Class G-6, at the Snelling Shops. (TCRT)



Above: Double deck car 1092 with the upper deck as modified for "all-weather" service. (William J. Olsen collection)

Below: Double deck car 1145 eastbound on 2nd St., Excelsior, at Water St. in 1906, leaving the wye which at that time was located on the east side of the street. (Norman F. Podas collection)

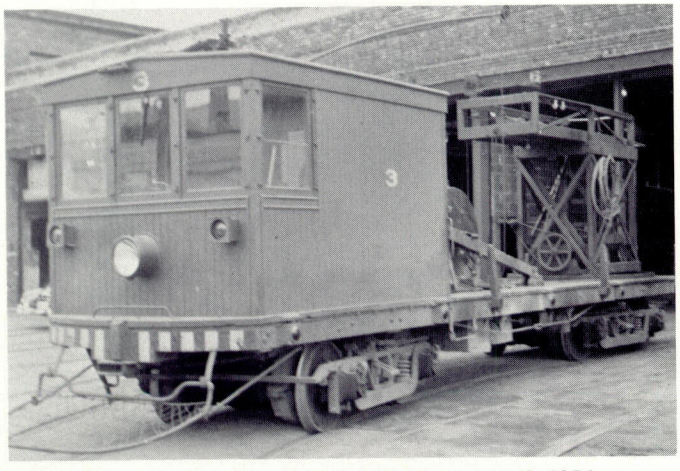




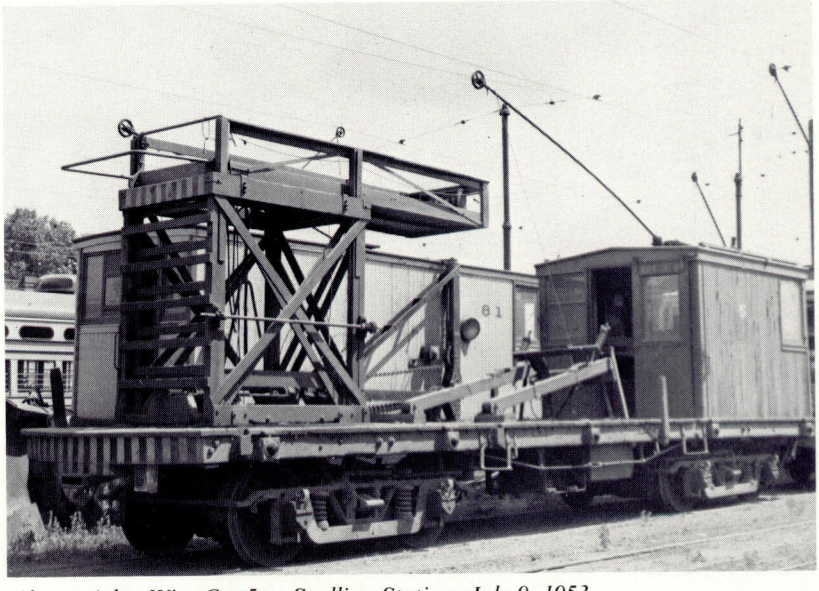
Above left: Stillwater Division Work Car 11. (H. E. Callander collection)

Left: Baggage Car 34, shortly before being scrapped, in storage at the Snelling Shops. (H. E. Callander collection)

Above right: Work Car 13 at the Snelling Shops. All Work Cars had side sills formed of 7" 91 lb. T rail, and were painted box car red with white numbers. (TCRT)



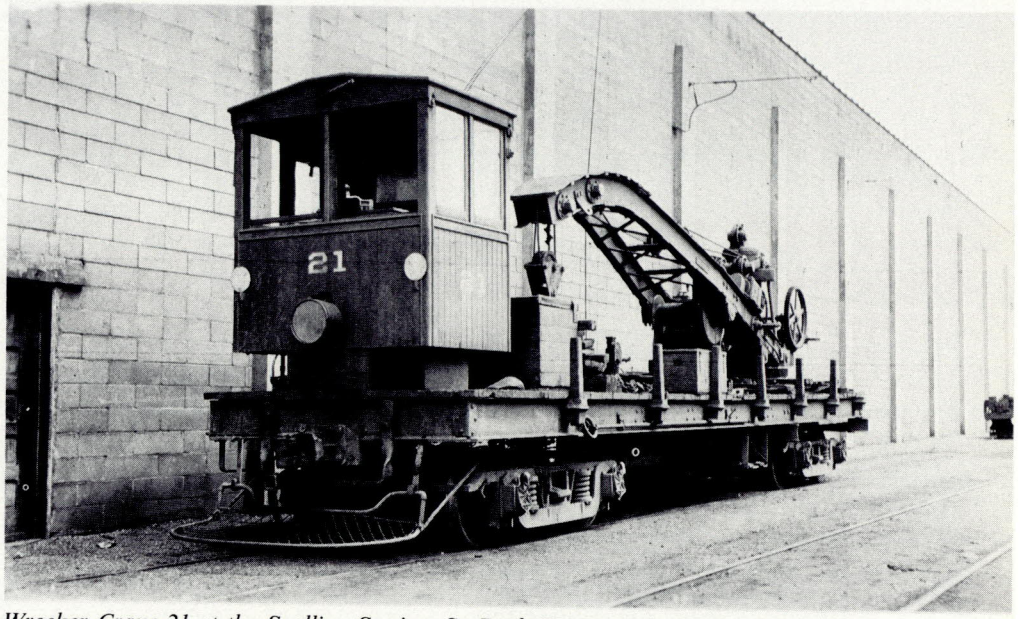
Above left: Wire Car 3 at East Side Station, June 3, 1954. Color was box car red with white numbers. (Edwin H. Nelson)



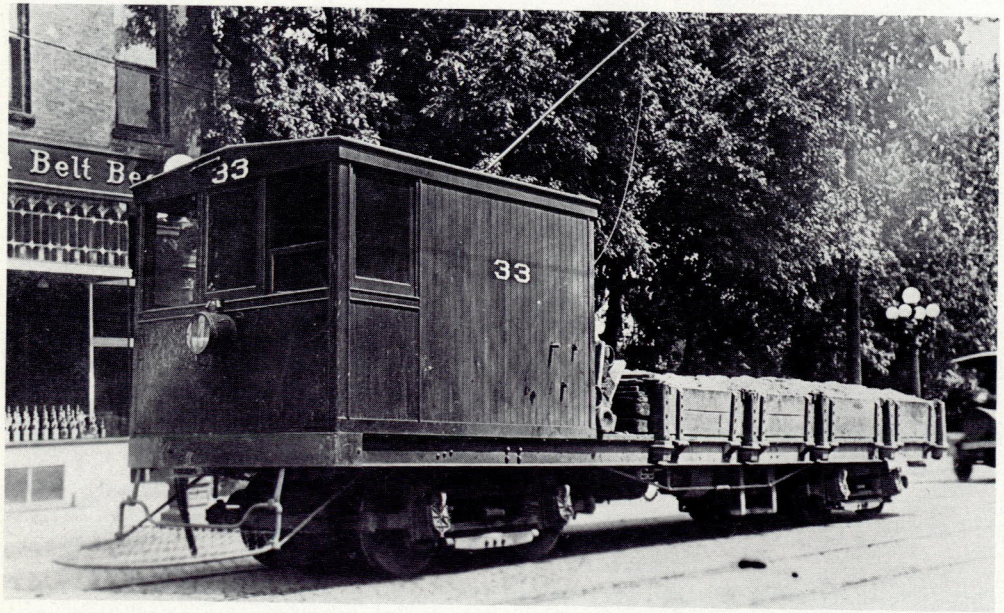
Above right: Wire Car 5 at Snelling Station, July 9, 1953. Cars 3-5 when built had the line tower located immediately behind the cab. (Robert A. Selle; James Foster collection)

Two views of Snow Plow 22 on Prior Ave. near Charles St., St. Paul. Colors were yellow body, red iron oxide roof, medium brown doors and trim moulding, and moss green underframe and snow plow equipment. (Norman F. Podas)

Electric Locomotive 20 at the Main Steam Station, Minneapolis. (TCRT; Ken Fletcher collection)



Wrecker-Crane 21 at the Snelling Station, St. Paul. (TCRT; Ken Fletcher collection)



Underground Wire Crew's Work Car 33 at an unidentified location. (TCRT; Ken Fletcher collection)

Rail Grinder 35 as it appeared in 1909. (TCRT)

CARS BUILT IN THE SNELLING SHOPS, ST. PAUL, 1907-1927

Cars	Car Numbers	Completion Dates	Classification	Trucks No.	Trucks Type	Motors No.	Motors Type	Gear Ratio	Controller Controller	Weight in Pounds	Notes
25	1266-1290	Sept.-Nov. 1907	H-6	2	Baldwin #5	4	G.E. 70	15:71	K-28-B	49200	
19	1291-1309	March-May 1908	I-1	2	Baldwin #5	4	G.E. 213	15:71	K-37-A	47800	26
4	29-32	Dec. 1908	Snowplow-sweeper	2	Baldwin #4	4	G.E. 73	17:73	C-6 (two) Type M	73400	27
50	1310-1359	Nov. 1908-Mar. 1909	J-2	2	Twin City #5	4	G.E. 213	15:71	K-37-A	48000	28
1	33	April, 1909	Underground Wire Crew Work Car	2	Twin City	4	G.E. 57	15:69	K-14	39800	29
20	1360-1369	July-Sept. 1909	K-2	2	Twin City #5	4	G.E. 213	15:71	K-37	46800	
	1370-1379	July-Sept. 1909	K-2	2	Twin City #6	4	G.E. 216	17:69	K-37	46800	30
1	35	Nov., 1909	Rail Grinder	1	Special	2	G.E. 67	15:69	K-11		31
3	36-38	March, 1910	Snowplow	2	Baldwin #4	4	G.E. 73	17:73	C-6 Type M	65400	32
25	1380-1404	Jan.-Mar. 1910	K-8	2	Twin City #6	4	G.E. 216	17:69	K-37-A	46200	
20	1405-1424	Apr.-July, 1910	K-8	2	Twin City #6	4	G.E. 216	17:69	K-37-A	46200	
25	1425-1449	Nov.-Dec. 1910	K-8	2	Twin City #6	4	G.E. 216	17:69	K-37-A	46200	
1	1450	January, 1911	K-8	2	Twin City #6	4	G.E. 216	17:69	K-37-A	46200	33
35	1451-1485	Jan.-Feb. 1911	K-8	2	Twin City #6	4	G.E. 216	17:69	K-37-C	46200	34
3	43-45	November, 1911	Sand Cars	2	Twin City #7 Work Car	4	G.E. 216	17:69	K-37	50000	35
100	1482-1581	Feb.-Oct. 1912	L-8	2	Twin City #8	4	G.E. 216	17:69	K-37-C	43700	36
3	46-48	May, 1912	Work Car	2	Twin City #7 Work Car	4	G.E. 216	17:64	K-37-C	41000	37
1	49	Feb., 1913	Refuse Car	2	Twin City #7 Work Car	4	G.E. 216	15:69	K-37	40000	38
1	50	April, 1913	Crane Car	2	Twin City #7 Work Car	4	G.E. 216	17:64	K-37	60600	39
17	1564-1566, 1582-1595	Apr.-May, 1913	L-8	2	Twin City #8	4	G.E. 203	16:68	K-37-C	42100	40
40	1596-1635	May-Oct., 1913	L-8	2	Twin City #8	4	G.E. 203	16:68	K-37-C	42100	
50	1636-1685	Dec. 1913-Feb. 1914	L-8	2	Twin City #8	4	G.E. 203	16:68	K-37-C	42100	41
6	51-56	March, 1914	Work Car	2	Twin City #7 Work Car	4	G.E. G.E. 216	17:64	K-37-C	40040 40920	42
1	58	April, 1914	Cupola Car	2	Twin City #7 Work Car	4	G.E. 67	15:69	K-28	51000	43
1	Univ. of Minn.	November, 1914	Switch Car	2	Twin City #4 I.S.	4	G.E. 57	16:69	K-37	46700	44
90	1686-1775	Oct. 1914-Feb. 1915	L-8	2	Twin City #9	4	G.E. 200	15:66	K-43-F2	41700	45
1	59	January, 1915	Sprinkler Car	2	Baldwin #4	4	G.E. 57	16:69	K-37	52100	
1	61	April, 1915	Cupola Car	2	Brill	4	G.E. 67	15:69	K-28-B	51240	46
8	62-63	May-July, 1915	Work Car	2	Brill 01	4	G.E. W.P. 50	15:71	K-6	43740	47
	64-69	May-July, 1915	Work Car	2	Brill	4	G.E. W.P. 50	17:64	K-6	43320	47
1	70	July, 1915	Sand Blasting Car	1	Bemis		None		None	13980	48
1	71		Pavement Plow		Four Wheels		None		None		49
17	1776-1792	Nov.-Dec. 1915	L-8	2	Twin City #9	4	G.E. 200	15:66	K-43-F2	41700	
2	MA & CR Ry. 1-2	Dec. 1915	L-8	2	Twin City #9	4	G.E. 200		K-43-F2	41700	50

CARS BUILT IN THE SNELLING SHOPS, ST. PAUL, 1907-1927

Cars	Car Numbers	Completion Dates	Classification	Trucks No.	Trucks Type	Motors No.	Motors Type	Gear Ratio	Controller	Weight	Notes
2	2000-2000A	April, 1916	Two-Car Train M-9	4	Twin City #10	8	G.E. 258	15:72	One K-43-F2	Each 28000	51
68	1713, 1716, 1719, 1722 1724, 1789-1851	Nov. 1916-Feb. 1917	L-8	2	Twin City #9	4	G.E. 200	15:66	K-43-F2	41700	52
1	72	May, 1917	Wire Car	2	Twin City	4	G.E. 57	28:57	K-14	59000	53
4	1852-1855	June, 1917	L-8	2	Twin City #9	4	G.E. 200	15:66	K-43-F2	41700	54
1	St. Paul So. Elec. Ry.	October, 1917	Locomotive-Work Car-Snowplow	2	Baldwin 75-25-A	4	W.H. 306 CA2	15:69	G.E. K-14	56200	55
8	75-82	Dec. 1917-Mar. 1918	Snowplow	2	Baldwin #2	4	G.E. 73	17:73	C-6 Type M	64320	
2	2002-2003	November, 1921	Two-Car Train P-14	4	Twin City #11	8	G.E. 264		One K-65	Each 26800	56
4	1-4	April, 1925	P-10	2	Twin City #12	4	G.E. 258	15:72	Rebuilt K-28	24,400	57
2	2004-2005	July, 1926		2	Twin City #12RB	4	G.E. 258	14:73	K-67	29480	58
25	2006-2030	Dec. 1927-Jan. 1928		2	Twin City #12RB	4	G.E. 258	14:73	K-75	28400	59

OTHER SERVICE EQUIPMENT

3	26-28		Shifter Car	1	Peckham 7B	2	G.E. W.P. 50	17:64	K-11	17600	60
10	84-93		Shop Trailer	1	Bemis		None		None		61

SERVICE EQUIPMENT PURCHASED

Cars	Car Numbers	Builder and Date	Classification	Trucks No.	Trucks Type	Motors No.	Motors Type	H.P.	Gear Ratio	Controller	Weight	Notes
1	6	National Dump Car Co. ?	Gondola Trailer	2	Arch Bar		None			None	36500	62
2	39-40	Kerwin Mfg. Co. 1911	Rail Grinder		Four Wheels	1	G.E. 67			K-11		63
2	57, 60	Thew Electric Shovel Co. April, 1915	Electric Shovel		Four Wheels	1	G.E. CVC 116	20		CE 1100 Rheostat	56000	64
1	73	Thew Electric Shovel Co. May, 1917	Electric Shovel		Four Wheels	1	G.E. CVC 116	20		CE 1100 Rheostat	56000	64
1	74	Brown Hoisting Machine Co. May, 1917	Yard Crane		Four Wheels	1	G.E. CQ2007G	68		R-156-A	66,455	
1	83	Differential Steel Car Co. Feb., 1927	Crane Car	2	National Coil Spring Arch Bar	4	G.E. 275		15:57	(two) C-169-D Type M	67000	65
1	94	Speeder Co. June, 1929	Electric Shovel-Skimmer-Ditcher		Detachable Wheels	1	G.E. 800 R.P.M.	25		CR-1003	31000	66

Notes

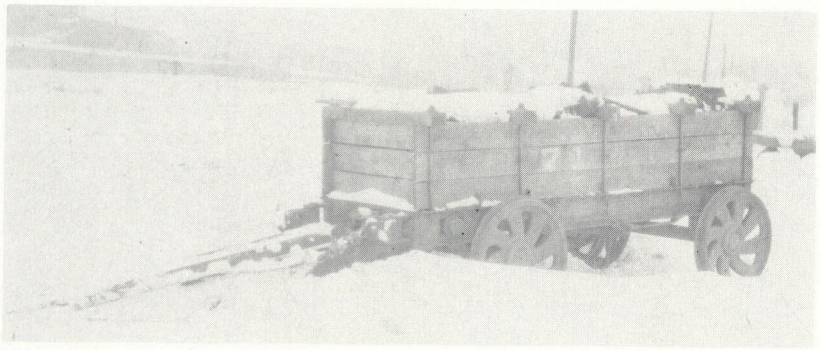
1.

Motor Type	H.P.	Motor Type	H.P.
G.E. 200	40	G.E. 258	25
G.E. 203	50	G.E. 264	24
G.E. 213	50	G.E. 275	60
G.E. 216	50		

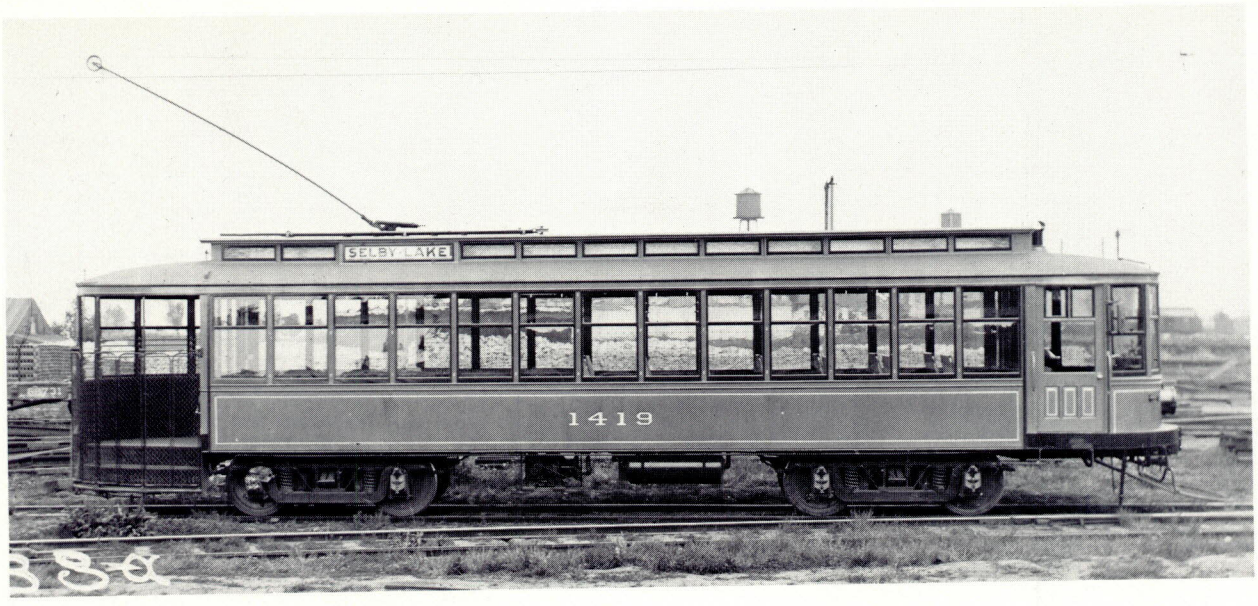
26. These were faster cars ordered for a planned cut in running time on the "Interurban" line. This was the first group of cars to have 34" diameter steel wheels; previous cars had 33" cast wheels.
27. The broom assembly was equipped with one G.E. 67 motor and K-11 controller, subsequently replaced by one G.E. 70 motor and K-28 controller.
28. 1310-1333 were completed in 1908 and 1334-1359 in 1909.
29. Capacity was 20,000 lbs. It later received a K-37 controller.
30. 1371-1375 subsequently received Baldwin #4 trucks.
31. As indicated previously a separate number series existed for each type of service equipment. About the time the Snelling Shops opened it was decided to consolidate the service equipment into one number system; due to eventual disposal of most of the original equipment it was rather simple to accomplish. The end result was: 1-2 original Supply Cars, 3-5 Wire Cars, 6 Gondola trailer, 7-19 Work Cars, 20 Locomotive, 21 Wrecker Crane, 22-25 Snow Plows, 26-28 Shifter Cars, 29-32 Snow Plows, etc. Maintenance report forms listed a 35 Snow Plow in 1909 which so far is unexplainable.
32. 38 was equipped with a double shear plow for use on the Stillwater Division (replacing 25 which was reassigned in October, 1910, to East Side Station for use on the "St. Louis Park" line). The side wing was operated by a G.E. 5 h.p. motor with an R-28 controller.
33. This car was built with an experimental sliding front exit door and folding steps. It was unsuccessful as the step mechanism tended to freeze up in cold weather.
34. 1482-1485 were sold July 1, 1911, to Duluth St. Ry. as their 238-241.
35. Storage capacity was 480 cu. ft. which held 30,000 lbs. (17.7 c.y.) of sand, 27,750 lbs. (3550 gal.) of water, or 29,120 lbs. (14.5 tons) of nut coal. The worm drive on the sand screw was powered by one 7½ h.p. motor controlled by an R-28-A controller.
36. 1564-1566 were sold in November, 1912, to Duluth St. Ry. as their 252-254.
37. Capacity was 50,000 lbs. or 16.30 cu. yds. 46 or 47 originally had four G.E. W.P. 50 motors and K-6 controller. All three cars later received four G.E. 70 motors.
38. Capacity was 50,000 lbs. or 15.54 cu. yds. It later received four G.E. 70 motors.
39. The crane was powered by one 24 h.p. motor and had a capacity of 8100 lbs. at 12' radius or 3600 lbs. at 26½' radius. It later received four G.E. 70 motors and K-37-C controller.
40. This order was originally made for cars 1582-1598 but then re-numbered to provide replacements for the three cars sold to Duluth St. Ry. 1564-1566 were equipped with Twin City #8 trucks and four G.E. 216 motors from 1578-1580 to have the cars equipped in numerical order; their G.E. 203 motors were placed in 1578-1580, 1581 having previously received the first new G.E. 203 motors for testing purposes.
41. 1636-1655 and 1661 were completed in 1913, and 1656-1660, 1662-1685 in 1914.
42. All steel construction except for the cab. Capacity was 17.00 cu. yds. 51-53 weighed less than 54-56. All cars later received four G.E. 70 motors.
43. Specially designed and equipped for thermite rail-joint welding; a Piqua #1593 blower (4'0" size) was powered by one G.E. CVC 114 motor (7½ h.p.) controlled by a CR 1000 starting rheostat. Output was three tons per hour.
44. This car was owned by the University of Minnesota and used for hauling railroad cars of coal, fertilizer, livestock, and machinery from the railroad interchange to the Agricultural Campus. It was also occasionally used to haul less-than-carload shipments of freight and supplies from the Main Campus storehouse.
45. This type of equipment gave a top speed of 37 m.p.h.; when field control was added at the time of rebuilding to one/two man operation the top speed increased to 42 m.p.h.
46. Identical to car 58. As of January 1, 1916 this car was equipped with Twin City #7 Work Car trucks, four G.E. 57 motors, and K-28-B controller.
47. All steel construction except for the cab. As of January 1, 1916 65, 67-69 had Brill and Baldwin #4 trucks, four G.E. 57 motors and K-28-B controller, or four G.E. 216 motors and K-6 controller. 62 was later listed with Baldwin #1 trucks (other equipment unchanged) as a wrecker at East Side Station. All cars later received four G.E. 70 motors. They were subsequently used mostly as ash cars at the various car stations and the Snelling shops.
48. Compressed air for sand blasting was supplied by one Christensen D-4 compressor.
49. This was a four wheel gondola trailer, ballasted with scrap metal and old paving blocks, and equipped with a steel ripping plow. It was pulled by a Work Car to rip up the granite paving blocks between the rails on track re-construction projects.
50. TCRT shop orders listed these cars as 1786A and 1786B respectively. Car 1 was modified in that the front platform was specially designed for a baggage

compartment; the front bulkhead was constructed two windows to the rear of its normal location and a large baggage door-motorman's cab door combination utilized.

51. Master Mechanic Walter Smith had decided that it would be advantageous to build a car much lighter than the standard type. If successful such a car would make less noise, reduce track maintenance, accelerate and brake more rapidly, and reduce power consumption. TCRT's designers found that the biggest saving in weight could be made in the trucks; consequently a correspondingly lighter motor could be used. The end result was this two-car train, the lead car controlling all motors and brakes on both cars. The radically designed trucks had inside frames and journals with air-operated band brakes. The coupler was a hollow tube in which all control cables were carried.
52. Original cars 1789-1792 had been sold in May, 1916, to Duluth St. Ry. as their 263-266 respectively. Then 1724, 1719, 1716, and 1722 were sold in July, 1916, to Duluth St. Ry. as their 267-270 respectively. 1713 was sold in July, 1916, to the Minneapolis Anoka & Cuyuna Range Ry. as their 7; at MA & CR's request TCRT was to move the front bulkhead back one window to provide space for baggage on the front platform. To replace these cars, and to give a system total of exactly 1100 cars, this order was for a total of 72 cars (including 1852-1855), but slow delivery of the motors created completion problems. Completed during 1916: 1713, 1716, 1719, 1722, 1724, 1789-1815, 1820-1822; completed in 1917: 1816-1819 and 1823-1851.
53. This car was assigned to the Owen St. Station for use on the Stillwater Division. It received a K-37 controller in 1927.
54. These cars were ordered at the same time as the previous sixty-eight cars but were not completed until June. On October 29, 1917, an agreement was made with the Minneapolis Anoka & Cuyuna Range Ry. whereby they acquired passenger cars 1855 and snow plow 25. 1855 was delivered to them in November and became M.A. & C.R. 8.
55. This car was built from the same plans as the University of Minnesota Switch Car for economic reasons but with a few modifications requested by the St. Paul Southern Electric Ry. which also furnished the trucks and motors.
56. This was also a lightweight two-car train, an improved version of 2000-2000A (later 2000-2001) with a new body style and improved truck design. The steel tube coupler contained motor wires, bell wires, and air hose.
57. These were built for the Stillwater local lines and were the only cars ever built by TCRT originally for one-man only operation. 1, 2 and 4 later received a K-75 controller.
58. These were lightweight, multiple unit cars, designed to operate singly, or as a two-car train.
59. 2006-2011 were completed in 1927 and 2012-2030 in 1928, the last new cars to be constructed by TCRT.
60. These three cars from the former Selby Hill counterweight operation were transferred to the Snelling Shops in 1907 and used there to shift cars and trucks between the various shop buildings. They later received two G.E. 67 motors.
61. About 1927-1928 the remaining single truck shop trailers from earlier days were assigned numbers in the current service equipment series. No data is available on their origin. 88 was a Flat Car while the others were Gondola Cars. 90 was also listed as a Refuse Car, built by TCL, 21'0" long, 6'6" wide and 3'0" box depth with 400 cu. ft. capacity. The January 1, 1916 MSR valuation lists a Refuse Car Trailer (Dirt and Ash Car, Gondola type) built by TCRT, 16'0" long over-all, 15'0" long over the body (three 16" x 4'9" hinged sections on each side), and 6'7" wide.
62. This car was used on the isolated third-rail line at the Main Steam Station, Minneapolis, and was of hopper bottom design with a capacity of 80,000 lbs.
63. The manufacturer is also listed as Kerwin Machine Co. or Kerwin-Detroit. Company maintenance forms listed a 39 Snow Plow (1910-1912), a 39 Rail Grinder (1912), and both a 39 Snow Plow and 39 Snow Plow and 39 Rail Grinder (1912); the explanation for the contradictions is unknown.
64. 1/3 cu. yd. bucket.
65. Weight was later listed as 70,000 lbs. Used primarily for track work, the crane had a capacity of 5 tons at 25'10" radius, and two tons at 44'0" radius.
66. ½ cu. yd. bucket. The machine was equipped with crawler tracks, which could be fitted with detachable wheels for rail travel.



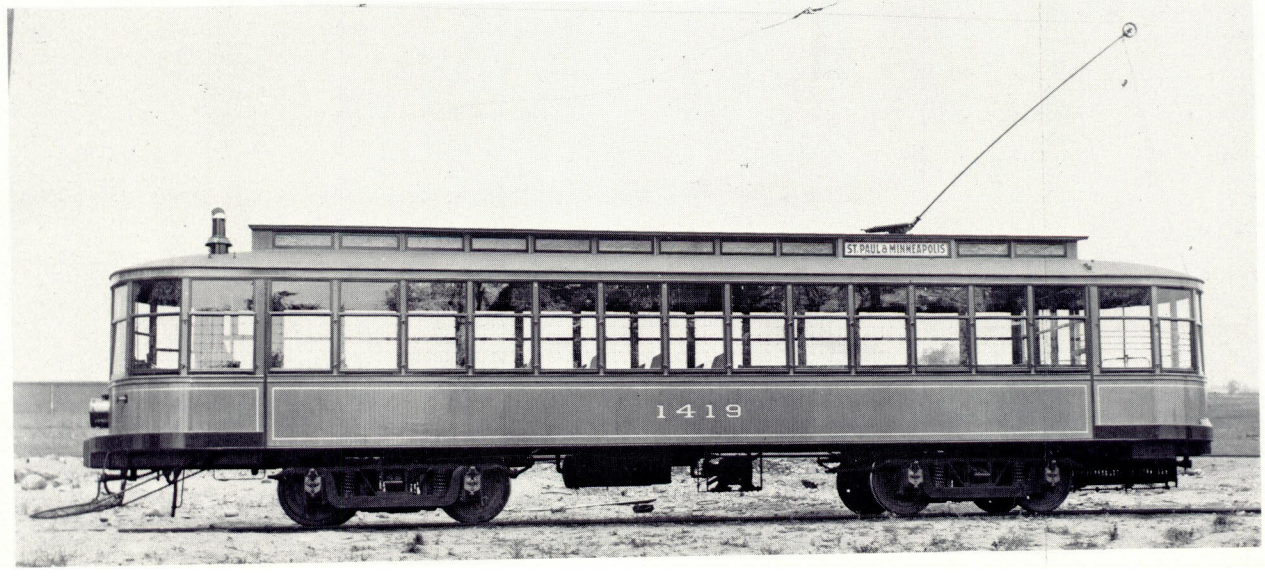
Pavement Plow 71 photographed in winter storage at the Snelling Shops. (TCRT)

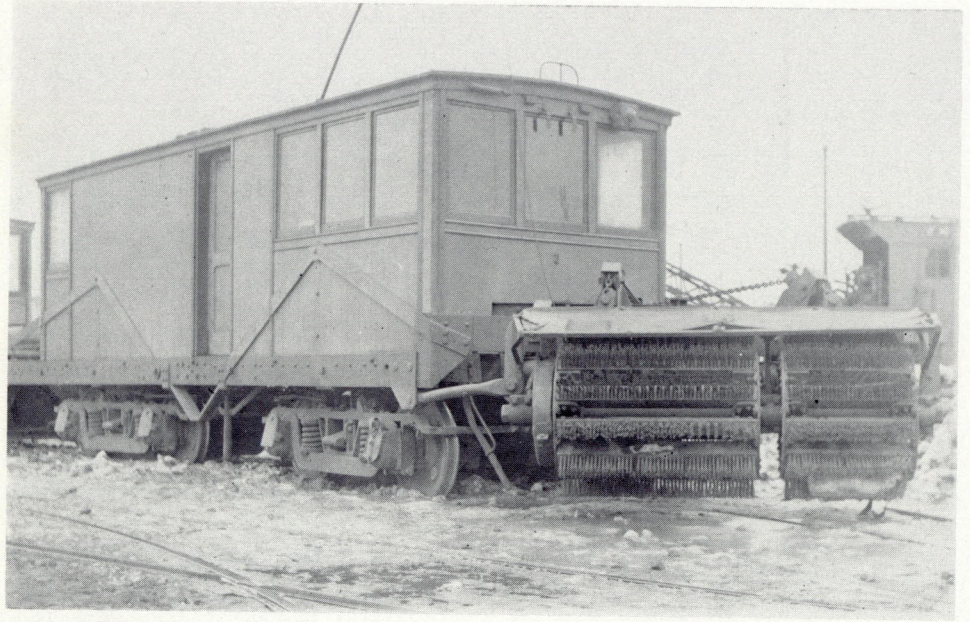


Above: The "gate side" of Class K-8 car 1419, taken in 1910 in the Track Dept. yard at the Snelling Shops. (TCRT)

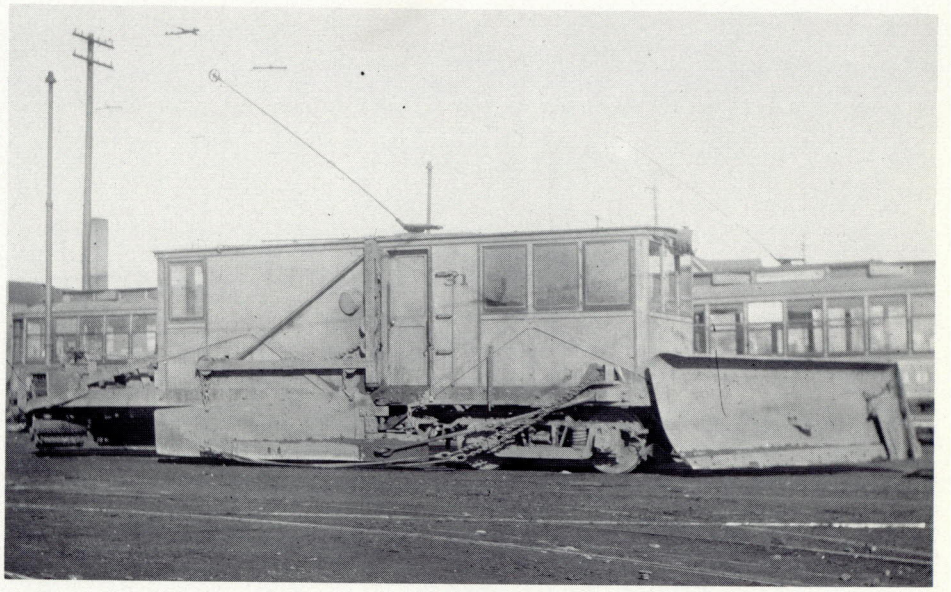
Right: Head-on view of car 1419, showing the marker brackets required for use on the Stillwater Division. Carbon arc headlights were originally used, designated as luminous arc headlights. Around 1910 enough cars had been fitted with arc headlights so that all night run cars on all lines could have them. Arc headlights remained in use longest on the High-speed Suburban cars. Manufacturers represented were Wagenhal, Mosher, General Electric and TCRT. (TCRT)

Below: "Pole side" of car 1419; trucks are Twin City #6. (TCRT)

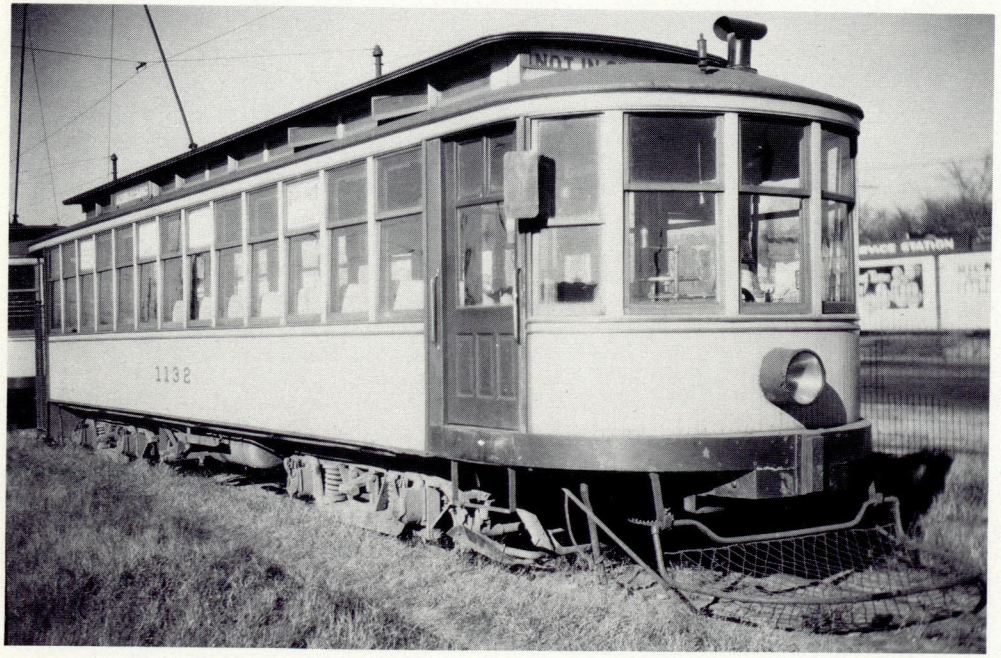




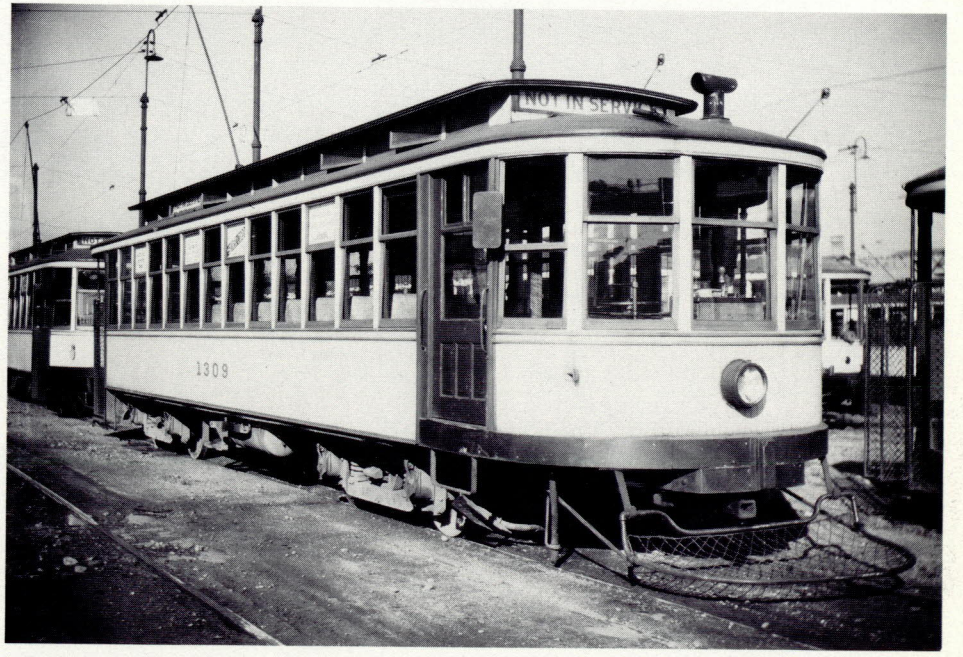
Snow Plow-Sweeper 31, showing the broom assembly. (TCRT; Ken Fletcher collection)



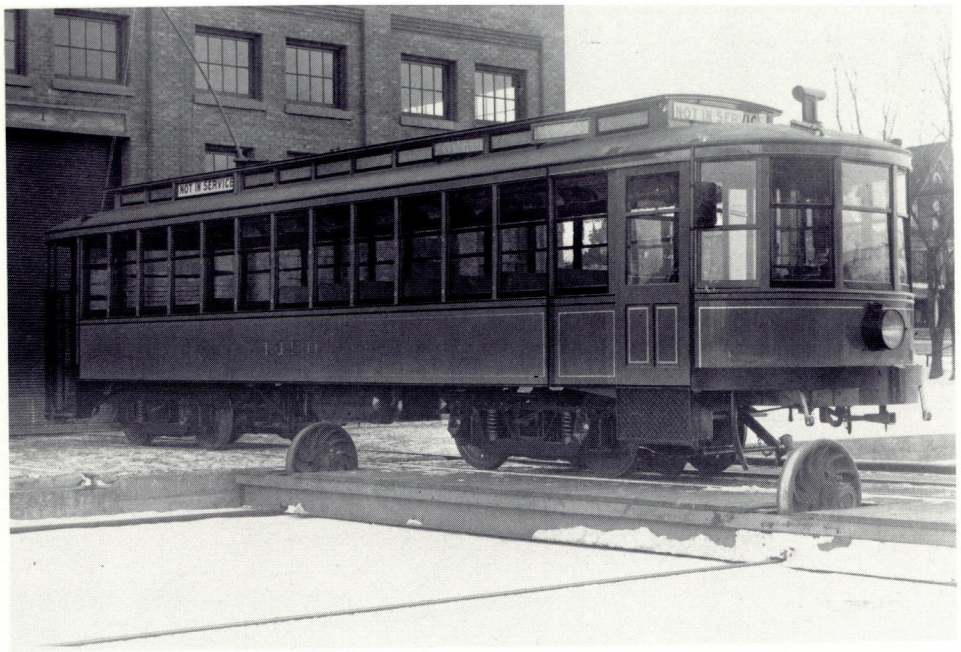
A Snow Plow-Sweeper, showing the overall appearance of the design. (TCRT)



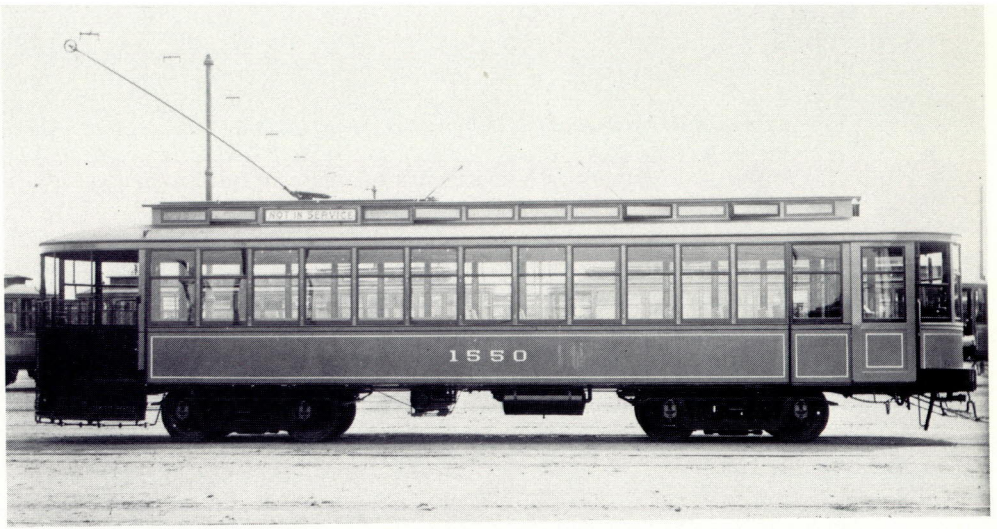
The "gate side" of Class F-4 car 1132 illustrating the early design characteristics. (TCRT)



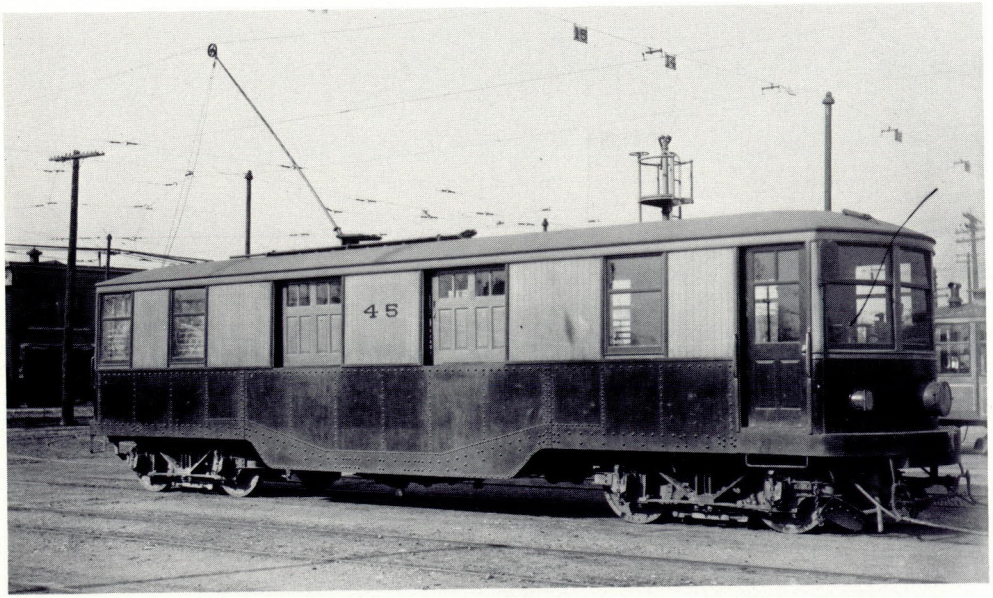
The "gate side" of Class I-1 car 1309 illustrating the later and more massive design characteristics. (TCRT)



Car 1450 with experimental front exit sliding door, on the transfer table in front of the erecting shop, January, 1911. (TCRT)

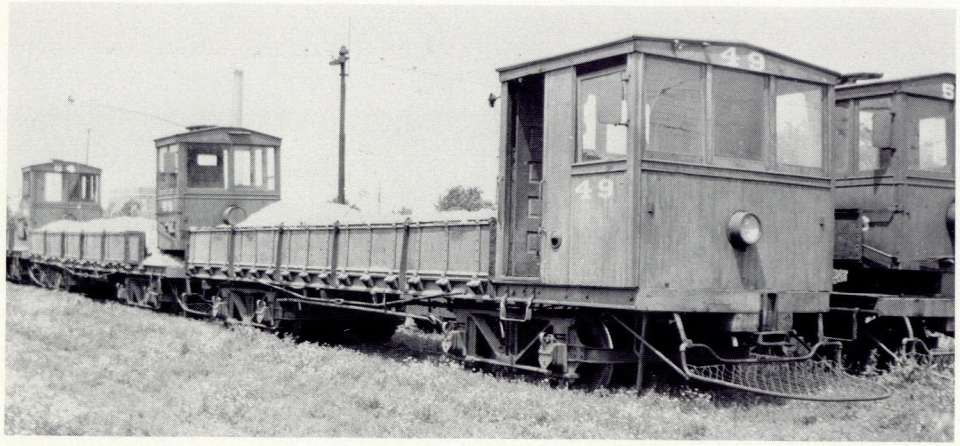


Newly completed car 1550, Class L-8, in the yard at Snelling Station awaiting movement to Lake St. Station where it had been assigned. Trucks are Twin City #8. (TCRT)

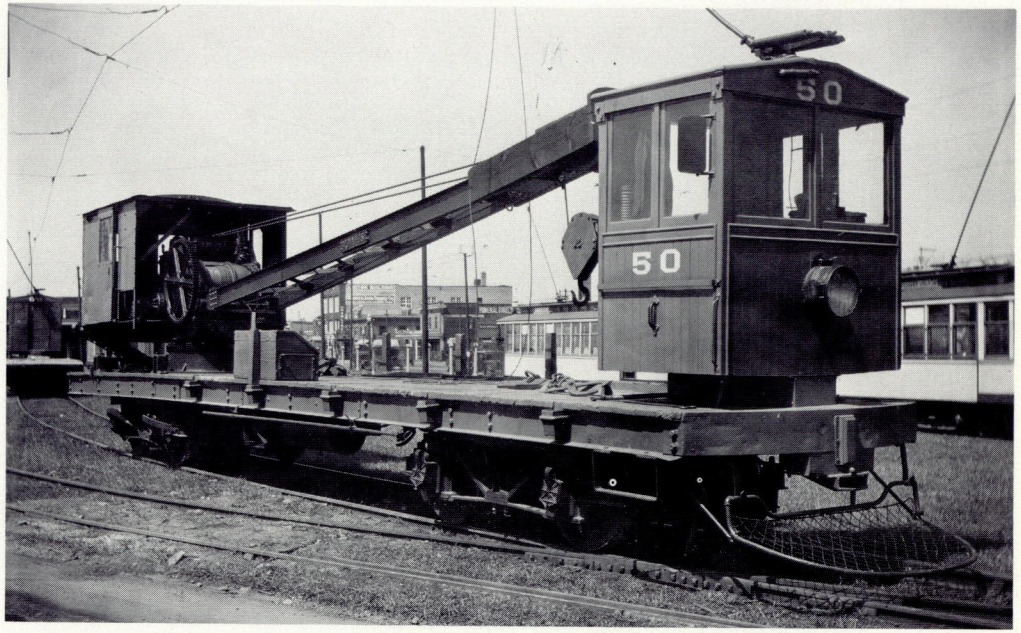


Sand Car 45 at Snelling Station. Body colors were yellow above the belt rail and moss green below; the roof was red iron oxide. (TCRT)

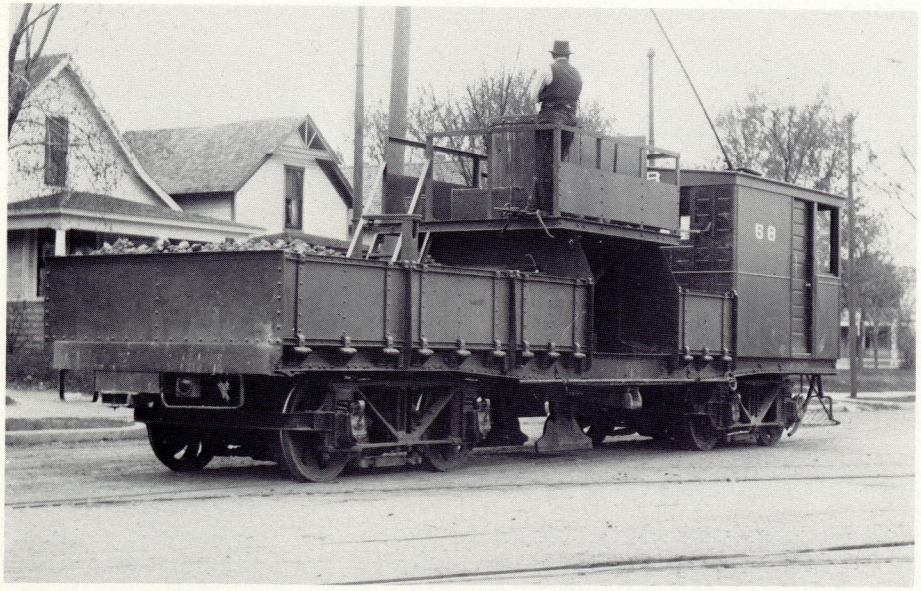
Class L-8 car 1535 showing how the first body window and sidewall were recessed to accommodate the sliding motorman's cab door. (TCRT)



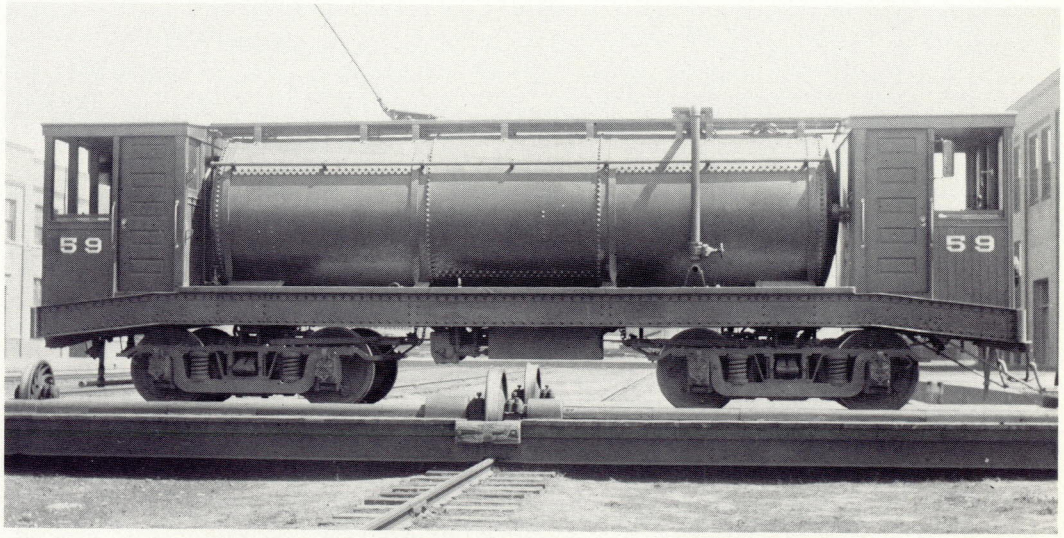
Refuse Car 49 at Lake Station, 1949; Work Cars 53, 55, and 54 are in background. (Stephen D. Maguire)



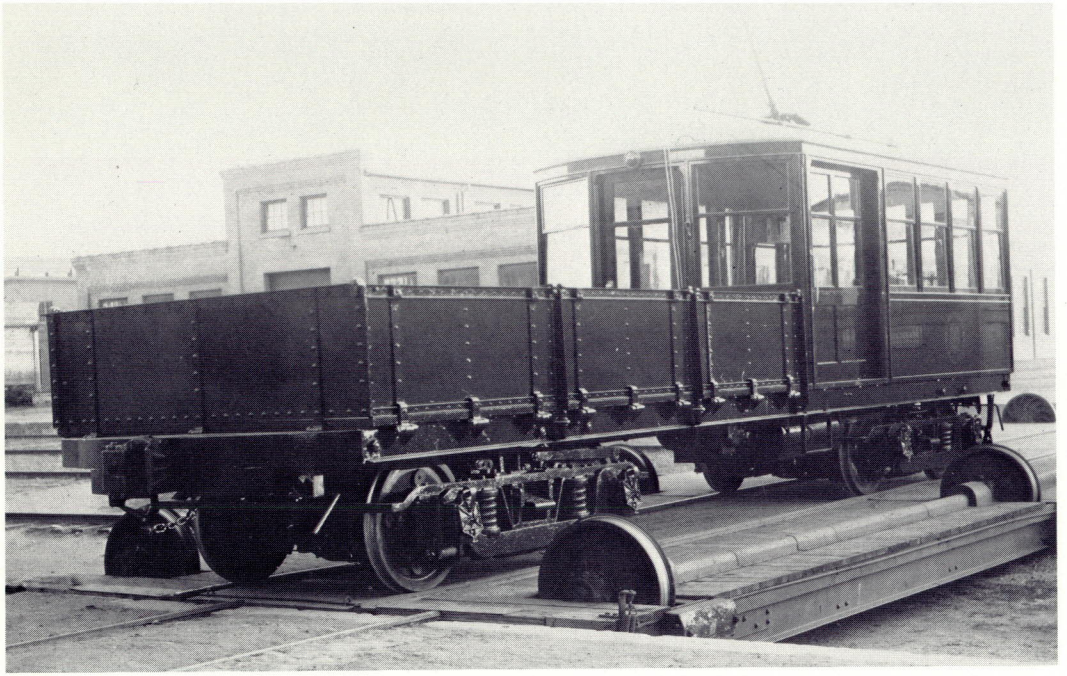
Crane Car 50 at Snelling Station. (TCRT)



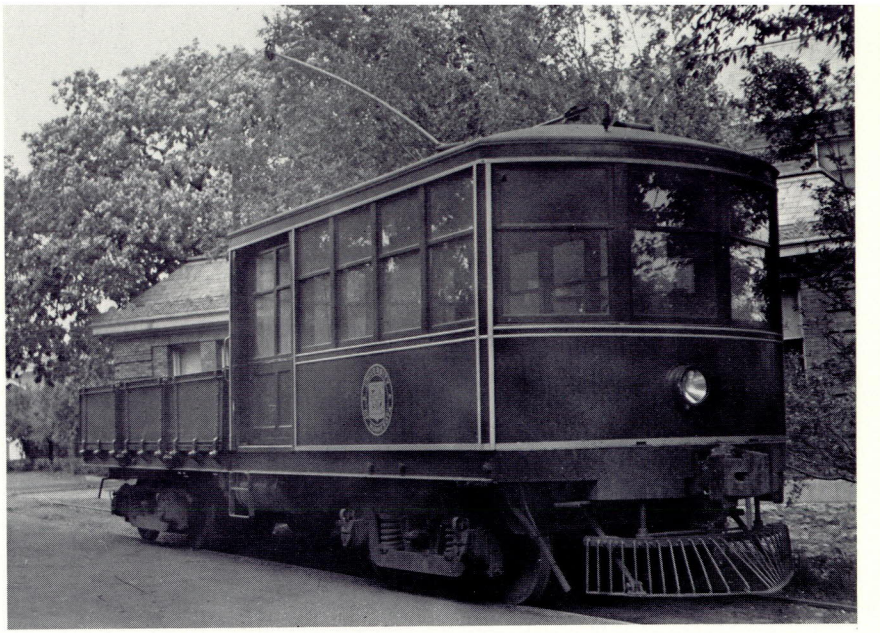
Rear view of Cupola Car 58 on 32nd St. at Nicollet Station, 1914. The Twin City #7 work car trucks have inside hung brakes. (TCRT)



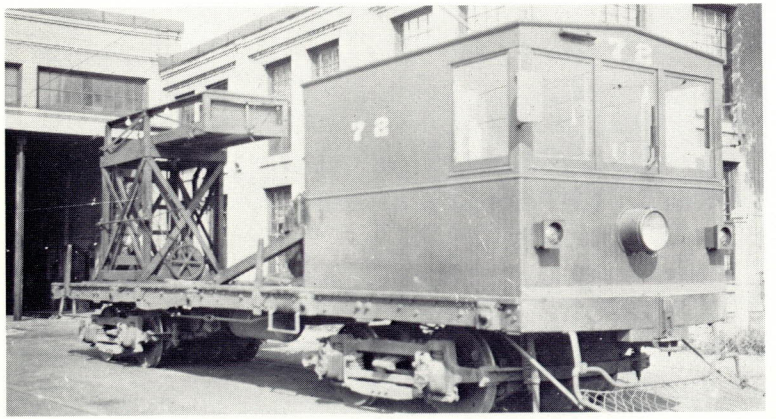
Sprinkler Car 59 on the transfer table at the Snelling Shops. It was equipped with two spray heads for water and a spray bar for road oil. Tank capacity was 4,000 gallons. An air compressor was located in the rear cab for maintaining pressure in the tank. Trucks are Baldwin #4. (TCRT)



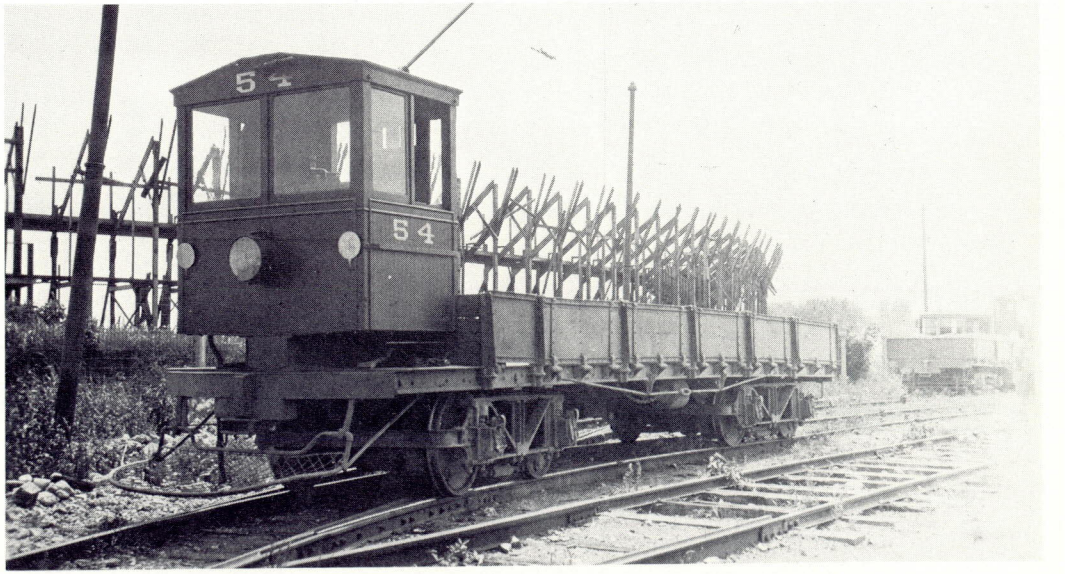
Rear view of the University of Minnesota Switch Car on the transfer table at the Snelling Shops, 1914. (TCRT)



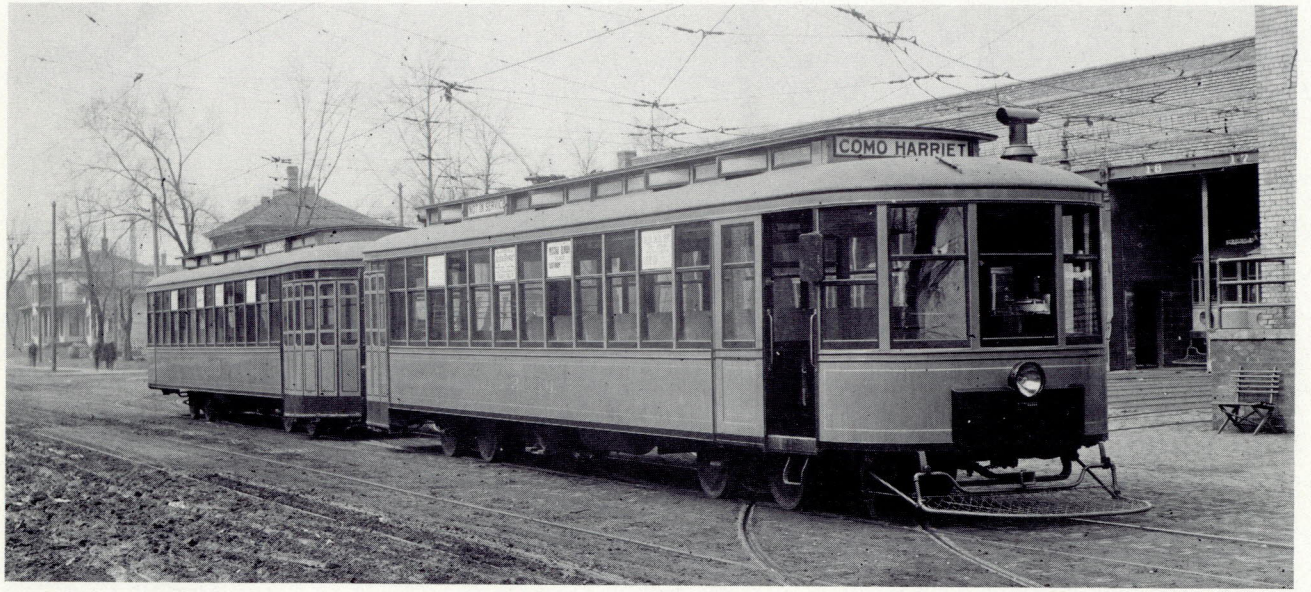
Front view of the Switch Car at the agricultural campus in St. Paul. (Norman F. Podas)



Wire Car 72 at Snelling Station. (Joe Hutchinson collection)



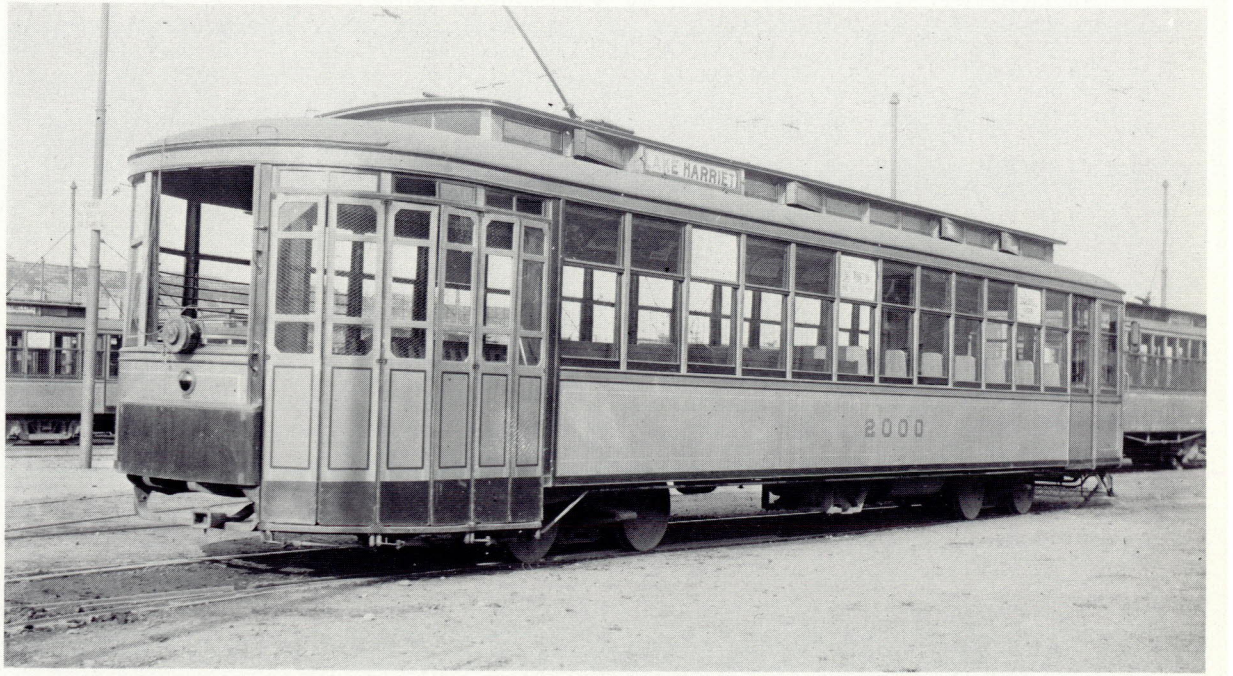
Work Car 54 on the yard tracks at the Snelling Shops storage shed about 1915-1916. The Motordrome is under construction at the left, later replaced by the Montgomery Ward & Co. building. (TCRT; Ken Fletcher collection)



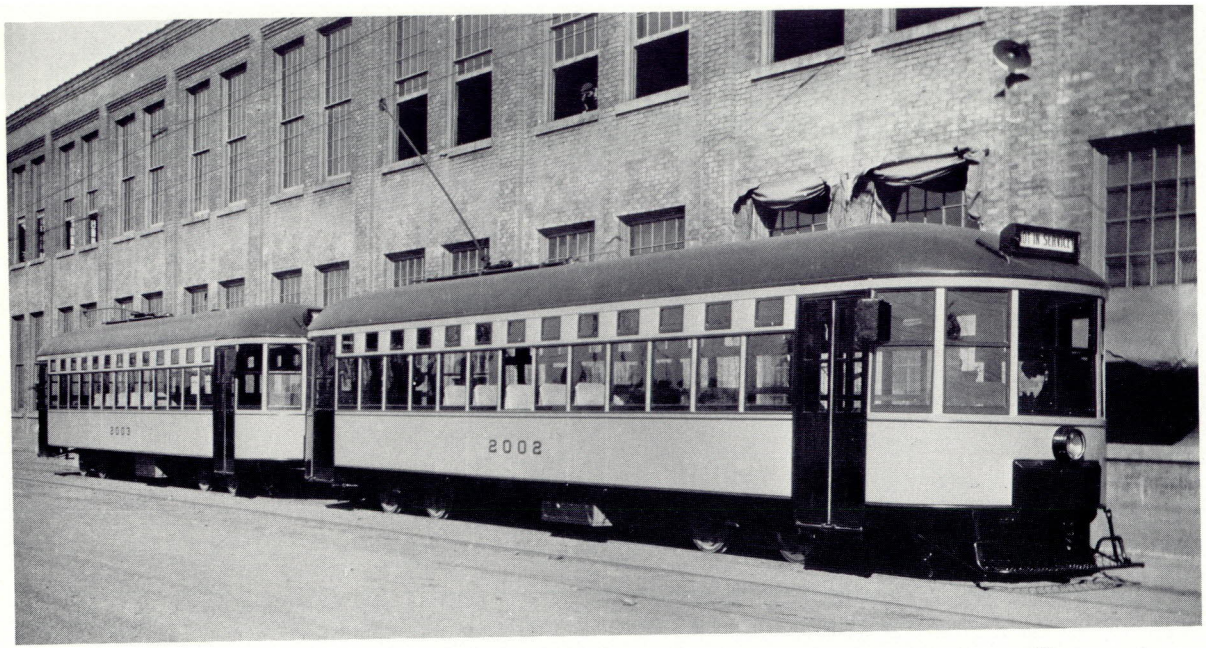
Two-car train 2000-2000A in service at East Side Station, Minneapolis. The motorman's cab door on the front car is in the open position. (TCRT; Edwin H. Nelson collection)

Rear view of car 2000A. (TCRT)

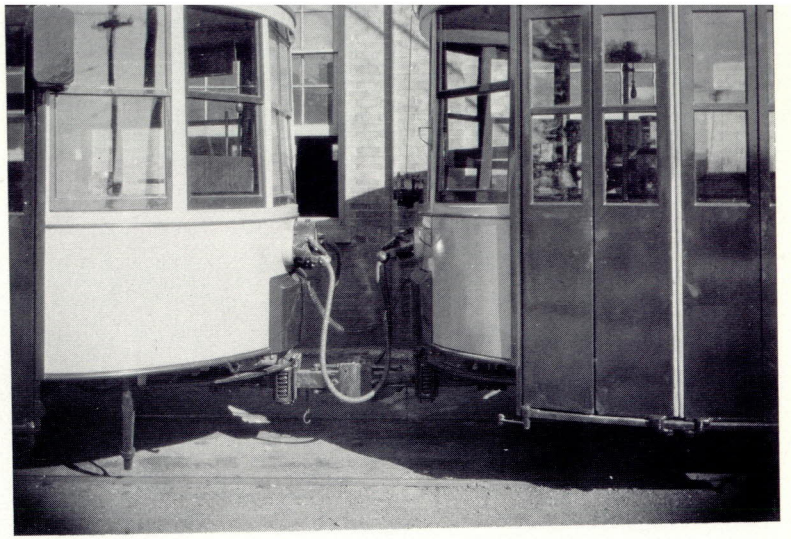
Door and coupler detail on train 2000-2000A. (TCRT)



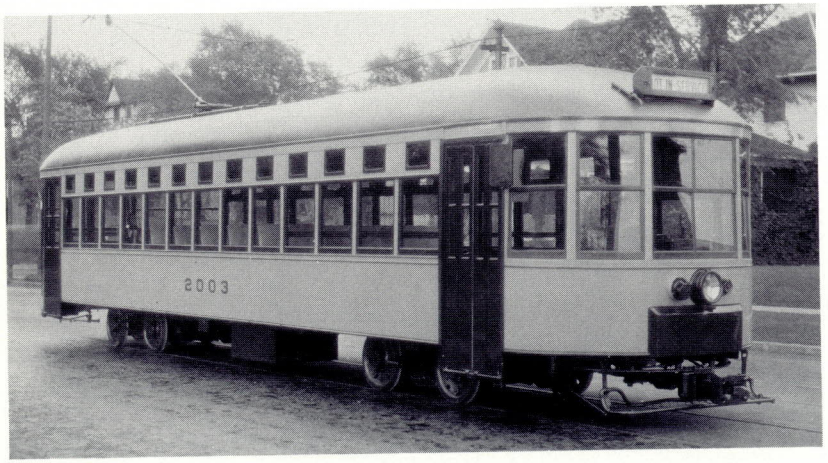
Car 2000 alone showing the rear platform door arrangement. (TCRT)



Two-car train 2002-2003. The small windows over each seat were for ventilation. Seating capacity was 48 persons in the front car and 57 in the rear car. There were no bulkheads between body and vestibules for easier entrance and exit. (TCRT)

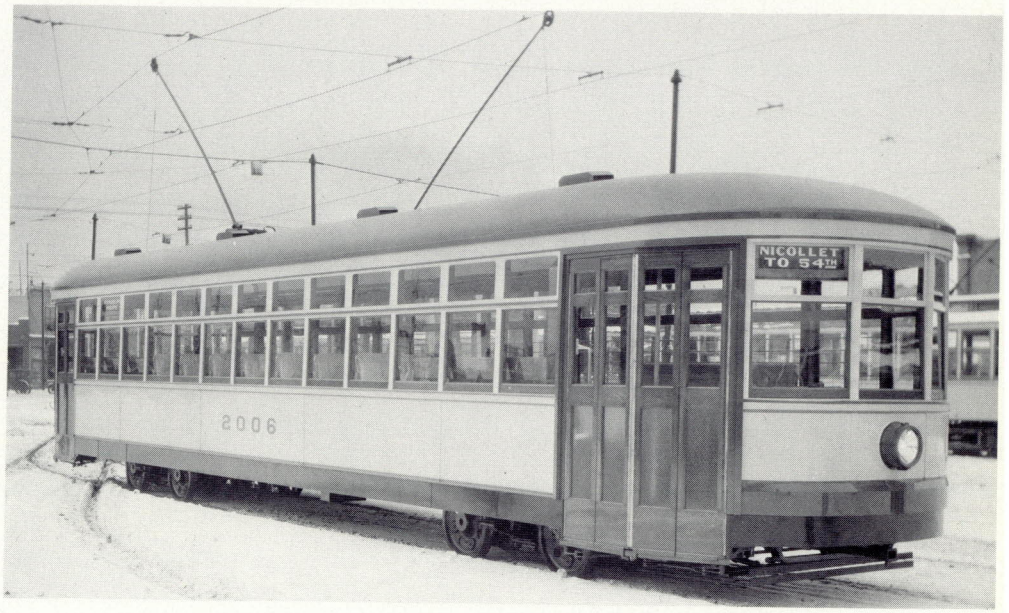


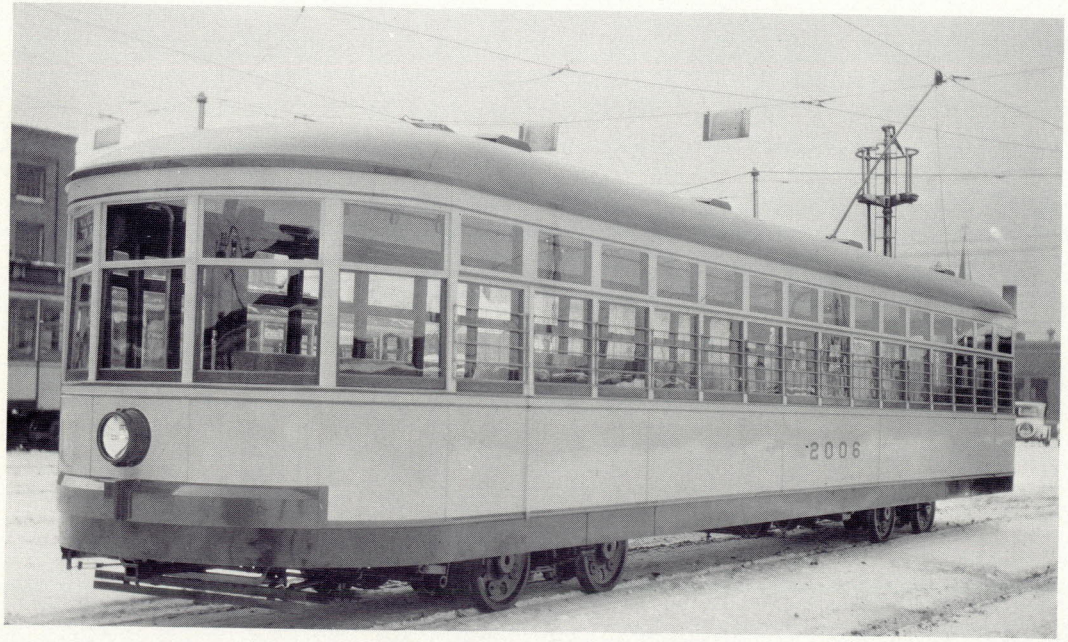
Coupler and cable connections between 2002-2003. The motorman controlled the operation of the doors of the front car: the front doors mechanically and the rear doors electrically. The conductor on the front car controlled the front doors of the rear car electrically, while the conductor on the rear car controlled the rear doors mechanically. (TCRT)



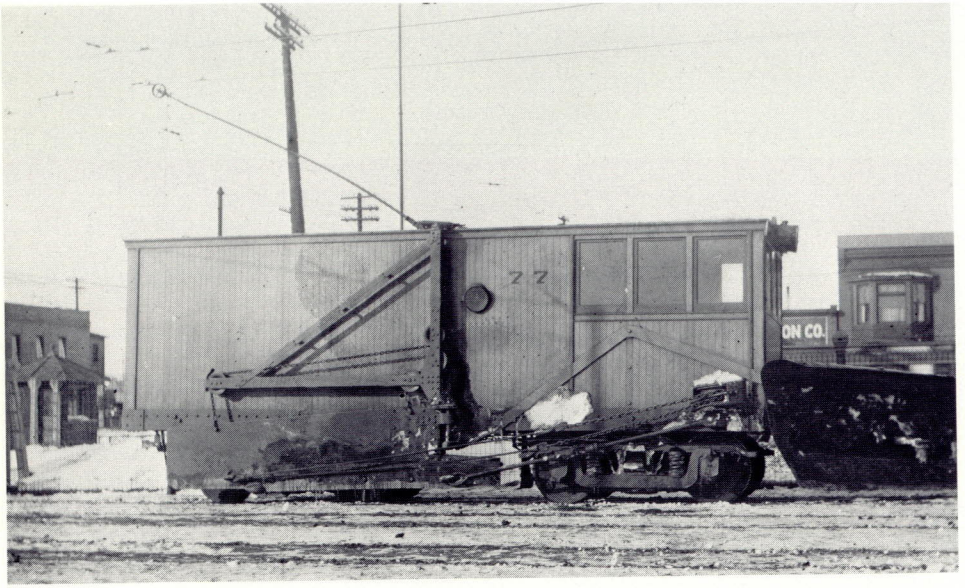
Car 2003 after equipment modifications were made so that each car could operate separately or both together as a train. (TCRT)

Newly completed cars 1-4 for the Stillwater local lines, April, 1925, outside the master mechanic's office (406 N. Snelling Ave.) at the Snelling Shops. Destination signs on the cars, from left to right, are: car 1 "To St. Paul", car 2 "To Bayport", car 3 "To Stillwater", and car 4 "Ball Grounds". (TCRT)

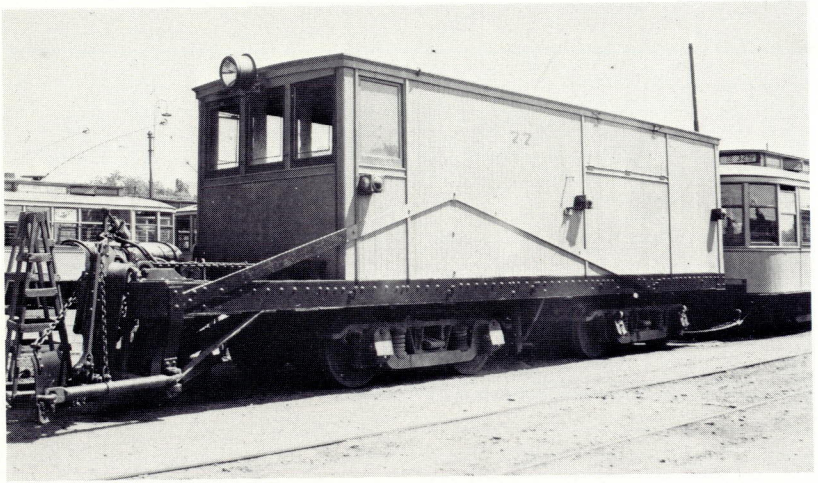


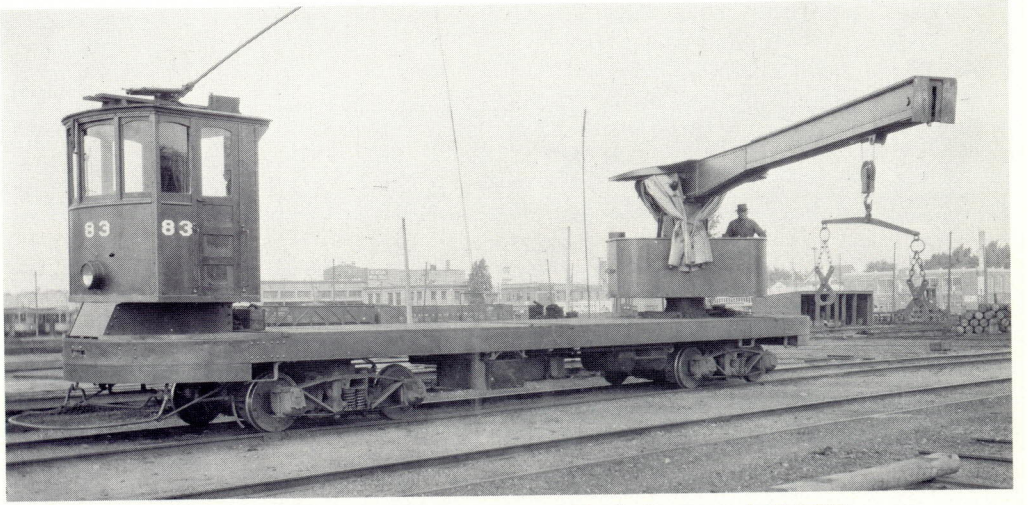


Above left: Multiple unit train 2004-2005 in July, 1926, on the Como Park right-of-way, St. Paul. (TCRT)
Above right: Newly completed car 2006, December, 1927. (TCRT)
Below left: "Pole side" of 2006. (TCRT)
Below right: Rear view of 2020 in "Como Ave." local service during the 1930's. (TCRT)



One of the three Shifter Cars, 26-28, at the Snelling Shops, formerly used to operate the Selby Hill counterweight system, St. Paul. (TCRT)





Crane Car 83 when new, 1927, at the Snelling Station Track Dept. yard. (TCRT)

Above: Snow Plow 77 at Snelling Station. (TCRT)

Center: "Pole side" of Snow Plow 77 showing the salt bins access door and extension blade to the plow. (TCRT)

Below: Rail Grinder 39 or 40 on Nicollet Ave. between 58th and 62nd Streets, 1947. (William J. Olsen)

Classification	Under-Frame	Length: Rear Platform	Length: Body	Length: Front Platform	Length: Over-All	Width	Platform Drop: Front	Platform Drop: Rear	Rear: Step No.	Rear: Gates (Pair)	Rear: Opening (Each)	Front Vestibule Door: Type	Front Vestibule Door: Size	Rear Bulkhead Door: Type	Rear Bulkhead Door: Size	Front Bulkhead Door: Type	Front Bulkhead Door: Size
Private Car	Wood	4'9"	33'4¼"	4'10¾"	43'0"	8'9"	S	S	—	—	—						
B-3	Wood	5'0¼"	33'2⅛"	5'0¼"	43'2⅝"	8'8¾"	*	S	3	1	42"	Hinged	22"x5'7"	SINGLE SLIDING	3'1"x6'2¼"		
B-5	Wood	5'0¼"	33'2⅛"	5'0¼"	43'2⅝"	8'8¾"	5½"	S	5	2	32"	Hinged	22"x5'7"	DOUBLE SLIDING	3'10"x6'2"	NONE SINGLE SLIDING (G)	2'6"x6'2"
C-3	Wood	4'11"	27'9"	4'11"	37'7"	8'4¾"	5½"	S	3	1	42"	Hinged	22½"x5'7"	SINGLE SLIDING	2'11½"x6'1¾"		
D-7	Wood	6'0"	33'2⅛"	6'0"	45'2⅛"	8'8¾"	5½"	S	7	2	33"	Hinged	2'9"x5'7"	DOUBLE SLIDING	3'10"x6'2"	NONE SINGLE SLIDING (G)	2'6½"x6'2"
D-4	Wood & Steel	6'0"	33'2⅛"	6'0"	45'2⅛"	8'8¾"	5½"	5½"	4	2	33"	Hinged	2'9"x5'7"	DOUBLE SLIDING	3'10"x6'2"	SINGLE SLIDING (G)	2'6½"x6'2"
E-4	Wood & Steel	6'0"	33'2⅛"	6'0"	45'2⅛"	8'8¾"	*	*	4	2	33"	Hinged	2'8¾"x5'7"	DOUBLE SLIDING	3'10"x6'1¾"	SINGLE SLIDING (G)	2'6¾"x6'1¾"
F-4	Steel	6'0¼"	33'9⅛"	6'0¼"	45'9⅝"	8'8½"	8"	8"	4	2	33"	Hinged	2'9"x5'8¼"	DOUBLE SLIDING	3'10"x6'1½"	SINGLE SLIDING (G)	2'6¼"x6'2"
G-6	Steel	6'6¼"	33'9⅛"	6'6¼"	46'9⅝"	9'2½"	8"	8"	6	2	36"	Hinged	2'9½"x5'9½"	DOUBLE SLIDING	4'4"x6'2½"	SINGLE SLIDING (P)	2'6¾"x6'1¾"
H-6	Steel	6'6¼"	33'6⅝"	6'6¼"	46'7⅛"	9'2½"	8"	8"	6	2	35"	Hinged	2'8¾"x5'8"	DOUBLE SLIDING	4'4¼"x6'2¼"	SINGLE SLIDING (P)	2'7"x6'2¼"
I-1	Steel	6'6¼"	33'6⅝"	6'6¼"	46'7⅛"	9'2½"	8"	8"	1	2	35"	Hinged	2'8¾"x5'8"	DOUBLE SLIDING	4'4¼"x6'2¼"	SINGLE SLIDING (P)	2'7"x6'2¼"
J-2	Steel	6'7⅛"	33'6⅝"	6'6¼"	46'8"	9'2½"	8"	8"	2	3	28"	Hinged	2'9"x5'8"	DOUBLE SLIDING	4'4½"x6'1¾"	SINGLE SLIDING (P)	2'6¾"x6'1¾"
K-2	Steel	6'7⅛"	33'6⅝"	6'6¼"	46'8"	9'1"	8"	8"	2	3	28"	Hinged	2'9"x5'8"	DOUBLE SLIDING	4'4½"x6'1¾"	SINGLE SLIDING (P)	2'6¾"x6'1¾"
K-8	Steel	6'7⅛"	33'6⅝"	6'6¼"	46'8"	9'1"	8"	8"	8	3	28"	Hinged	2'8¾"x5'8½"	DOUBLE SLIDING	4'7¼"x6'2"	SINGLE SLIDING (P)	2'6¾"x6'2"
L-8 2000	Steel	6'7" 6'8"	33'7¾"	6'5¼" 6'0"	46'8"	9'1"	7"	7"	8	3	28"	Sliding	2'8¼"x6'3"	DOUBLE SLIDING	4'7½"x6'2½"	SINGLE SLIDING (P)	2'6¾"x6'2"
M-9 2000A	Steel	6'0"	33'4¼"	6'8"	46'0¼"	9'0"	7"	7"									
P-14	Steel				46'0"	9'0"	7"	7"									
P-10	Steel				35'10¼"	9'0"	S	S									
2004-2005	Steel				45'6"	9'0"	8"	8"									
2006-2030	Dura-Lumin				45'6"	9'0"	8½"	8½"									
Work Cars 7-10	Steel		Cab 4'0"		36'0"	8'8"											
Work Cars 11-19	Steel		Cab 4'0"		37'2½"	8'8"											
46-48, 51- Work Cars 56, 62-69	Steel		Cab 4'0"		37'2½"	8'0"											
Snow Plow 25	Wood		24'3"		32'4"	8'3"											
Snow Plows 22, 36-38	Steel		27'2"		36'8"	8'5½"	(38 = 34'0½" Long Overall With Double Shear Plow)										
Snowplow — 23-24																	
Sweepers 29-32	Steel		24'10"		44'2"	9'3"											
Snow Plows 75-82	Steel		27'3"		37'2"	8'8"											
Wire Cars 3-5, 72	Wood		Cab 10'0⅛"		37'6"	8'8"											
Baggage Car 34	Steel	2'9⅝"	39'6¼"	2'9⅝"	45'1½"	9'2¾"											
Locomotive 20	Steel		Cab 7'0"		27'0"	9'0 5/16"											
Wrecker-Crane 21	Steel		Cab 4'0"		38'5"	9'1¾"											
Shifter Cars 26-28	Wood		12'8¾"		20'4½"	7'3⅛"											
Und. Wire Crew Work Car 33	Steel		Cab 10'0⅛"		37'0"	8'8"											
Rail Grinder 35	Steel		22'6"		24'0½"	9'0"											
Sand Cars 43-45	Steel				40'0"	8'10⅛"											
Refuse Car 49	Steel				37'2½"	8'0 1/16"											
Crane Car 50	Steel				43'10"	8'11½"											
Crane Car 83	Steel				44'0"	8'0"											
Cupola Cars 58, 61	Steel		Cab 10'0"		37'0"	8'2"											
Sprinkler Car 59	Steel		Each Cab 5'4½"		35'4"	8'0¼"											
Sand Blasting Car 70	Wood				11'0"	6'6"											
U of M Switch Car Work Car-Loco-	Steel		Cab 18'6½" Cab		37'0"	9'0½"											
SPSERY motive-Snowplow	Steel		18'6½"		37'0"	9'6"	(40'0" Long Overall With Snowplow Attached)										
Gondola Trailer 6	?		36'2"		37'8"	10'0"											
Rail Grinders 39-40	Steel				15'7½"	7'4"											
Electric Shovels 57, 60, 73	Steel		Cab 12'6"		27'0"	8'6"											
Yard Crane 74	Steel				48'10"	10'10"											
Electric Shovel 94	Steel		Cab 13'0"		31'6"	8'8"											

Notes

Platform drop
- S = Straight
- * = Straight on 737-788, 5½" on all others
- ** = 5½" on 1042-1079, 7" on 1080-1090, second 1043, and 8" on 1091-1011.

Front Bulkhead Door
- (G) = opening toward the "gate side"
- (P) = opening toward the "pole side"

Underframe

Wood and steel = wood underframe with steel reinforcing frames from each bolster to and under each platform.

1A. Equipment Construction Details –

Car Building Programs

Classification System

TCRT eventually developed a classification system which was applied currently and retroactively to cover all cars built in the company shops. Additions and revisions were made from time to time, not all of which are known to us. The original system has been adapted for use in describing the types of cars built and rebuilt and the details of the system are included in the text of the following sections. However the outline of the complete system was as follows:

Capital letter = underframe type.
Numeral = step and gate assembly type.
Small letter = truck type (see section on car trucks).
2 or 3 Numerals = motor type, using the manufacturer's actual motor number.

For example, cars 1112-1123 were classified F-4-b-73. The following table summarizes pertinent data for each classification. (Class A-3 was assigned to 607-626 which had a #3 rear step with one pair of gates opening approximately 42".)

Class E-4 Double Deck Car 1092

The first drawings for a proposed double deck car were dated July, 1903. The standard car design was modified by moving the trolley base to extreme rear, installing twelve four-passenger benches on the deck roof, installing a stairway from the front of the deck roof leading transversely along the front bulkhead to a front entrance with single gates located in the position normally occupied by the motorman's cab door, laying a walkway on either side of the benches, and enclosing the superstructure with waist high handrails and screening. The upper deck was open to the weather and was designed to be removed during the winter months with the car being restored to its normal appearance. Subsequently a full height framework of pipe and planks was erected from which were hung waterproof folding curtains to give some protection from rain.

Overall height was 16'4" compared to 11'5" for a regular car.

The experiment met with indifferent success and although the car was never used in regular service because it did not offer sufficient protection from the weather, TCRT was still interested in double deck cars.

Class G-6 Double Deck Car 1145

Plans for a more substantial double deck car were begun in October, 1905. The lower carbody construction was built somewhat heavier than otherwise. The width of the corner posts was increased and the roof carlines reinforced (at every post the wood carline was reinforced by steel ¾" x 2½" carlines). The steel underframe was for a car 6" wider and 12" longer than the previous steel underframe construction. The additional width was for aisle and bulkhead door openings, the additional length for wider entrances on the platforms. The upper deck construction consisted of side panels solid to arm rests, a solid flat roof, open side-window spaces (with protection from the rain provided by pantasote curtains sliding in grooves on the window posts) and glass windows in front. Thirteen five-passenger benches were provided with an aisle on the left side. The upper deck added about 15,000 pounds to the weight of the car. The lone stairway to the upper deck was on the front platform constructed in the same manner as the one on 1092. Total height of the car was 16'8" and a regular trolley pole was used even though the clearance between roof and trolley wire was only 3'4". The front gates on the stairway entrance were controlled by the motorman.

Front Vestibule Sliding Door

According to an article in the March 1, 1912, Minneapolis Journal the annual cost of glass breakage was considerable on cars with the hinged motorman's cab door. Thus TCRT decided to construct all future cars with a sliding door on the entrance to the motorman's cab.

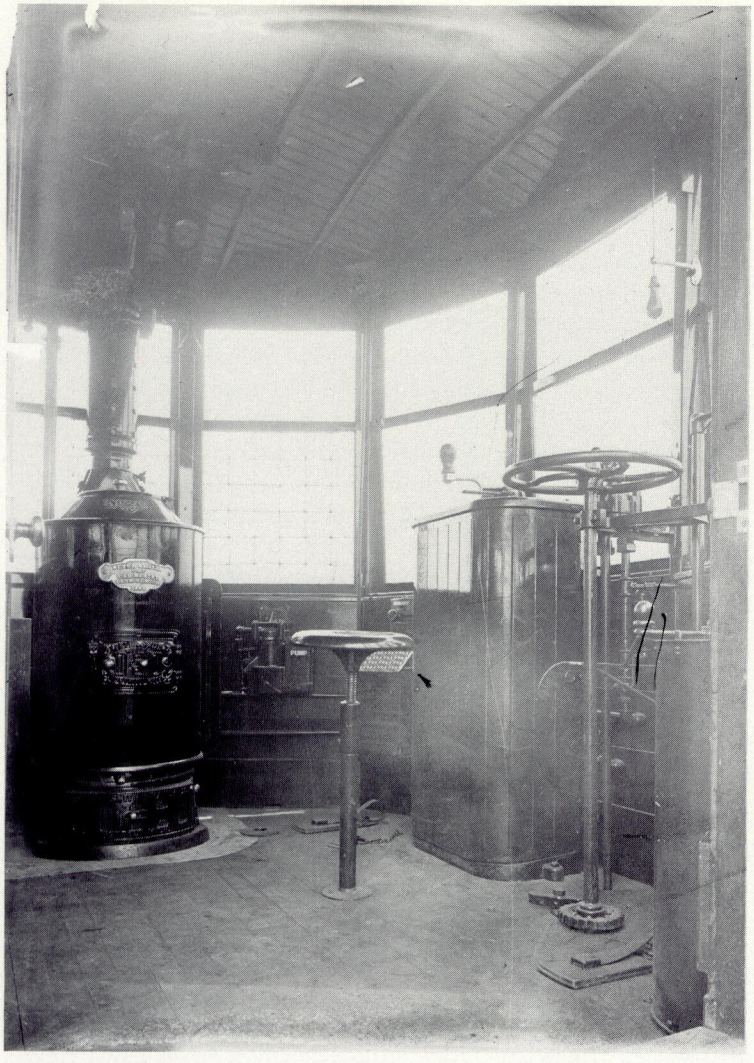
Miscellaneous Details

Seating Arrangements

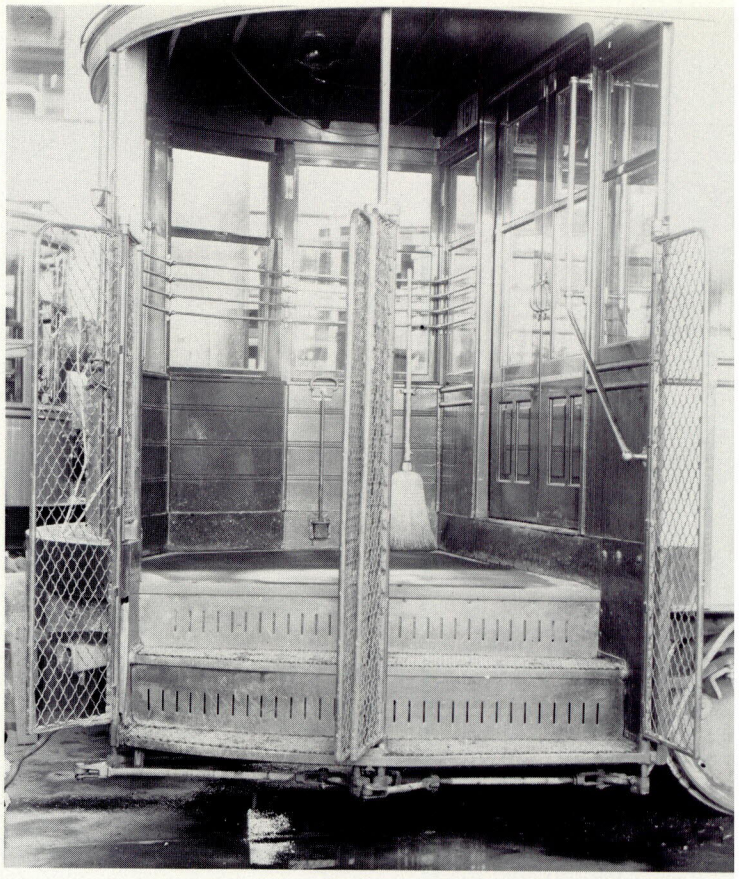
Standard Passenger/Urban cars (except 868-899) had seven rows of double cross seats to the front with two rear longitudinal benches, seating a total of 48 persons. Standard Urban cars 868-899 had six rows of double cross seats to the front with two rear longitudinal benches, seating 40 persons. The High-Speed Suburban cars, and cars 938-951 used in sightseeing service, had double cross seats throughout except for single cross seats in the last row rear (to facilitate entrance and exit through the rear bulkhead doors), seating 50 persons. Lightweight cars had seven rows of double cross seats at the center of the car with longitudinal benches at front and rear, plus a single seat on the "pole side" of the front platform just behind the motorman and facing the aisle.

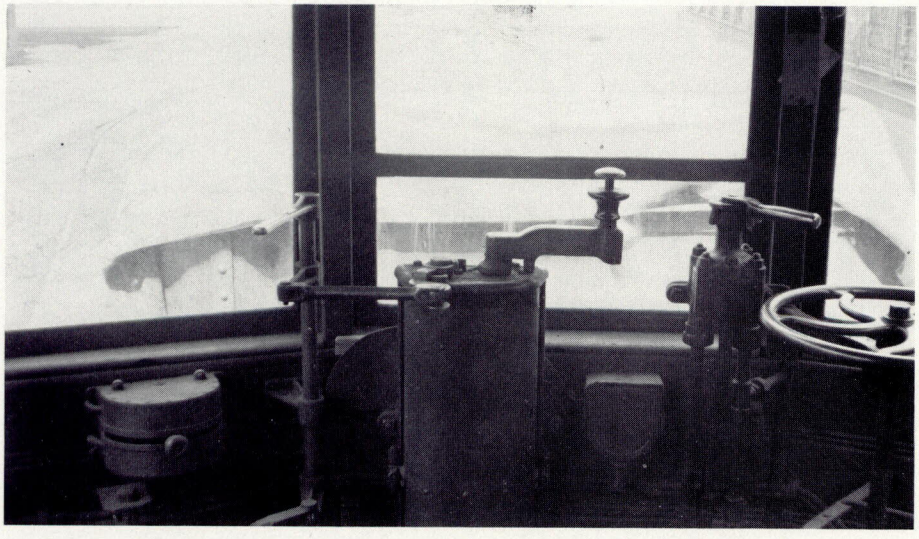
Brakes

Hand brakes were used exclusively, except on the Private Car and Stillwater Division cars 773-785, until 1902. The first experiments with air brakes on local cars were made in January, 1901. Magnetic track brakes were tested in October, 1902; at first termed successful, they were shortly dropped from consideration. The first local cars equipped with air brakes were 900-949 built during 1902. All subsequent new cars were constructed with air brakes. During 1902 and 1903 (134 cars completed in 1903) all older double truck cars were equipped with air brakes and whistles: 608-626, 737-772, 786-788, and 797-899. Air compressors used were: Christensen (Private Car, 737-788, 797-1195), General Electric (1196-1254, 1266-1290), G.E. CP-21 (1255-1265, 1291-1429), Allis-Chalmers AA-6 (1430-1481), G.E. CP-27 (1482-1631, 2000-2001), G.E. CP-25 (1632-1855, 2002-2030), National AA-1 (1-4) and National AA-2 (some service equipment).

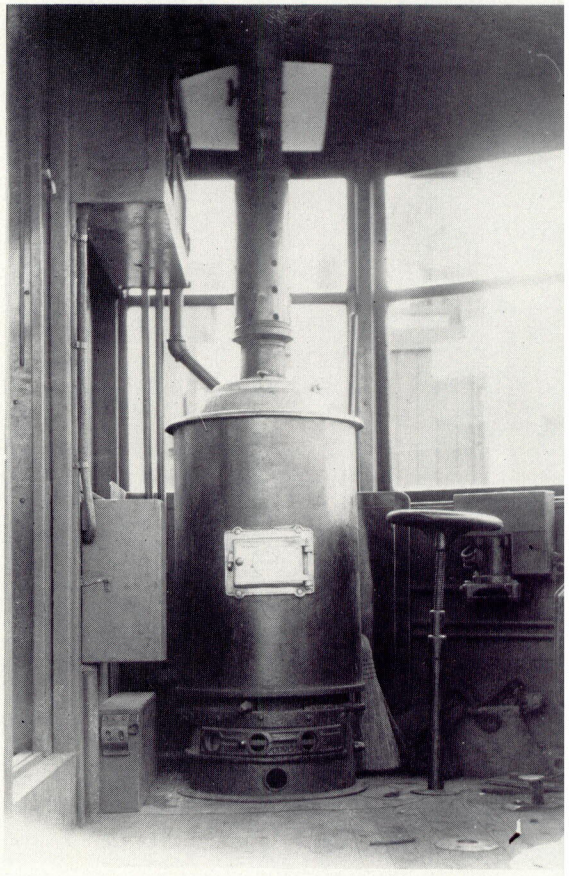


Interior view of the motorman's cab of Class K-8 car 1419. The hot water heater is a Peter Smith. Sand bin sanding mechanism was operated by the knee-actuated lever. Pivoted plates on the floor cover openings through which a switch rod could be manipulated, allowing the motorman to throw track switches without leaving the car. (TCRT)



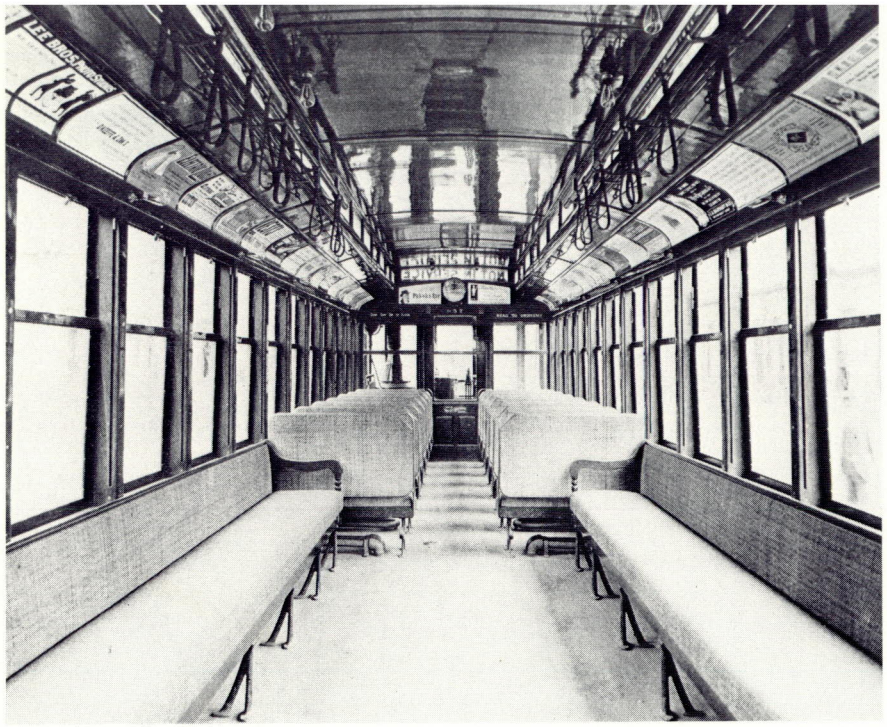


Motorman's cab of Rail Grinder 96 (ex 1261) showing the C-6 master controller with lever for operating the reverser mechanically. (William J. Olsen)



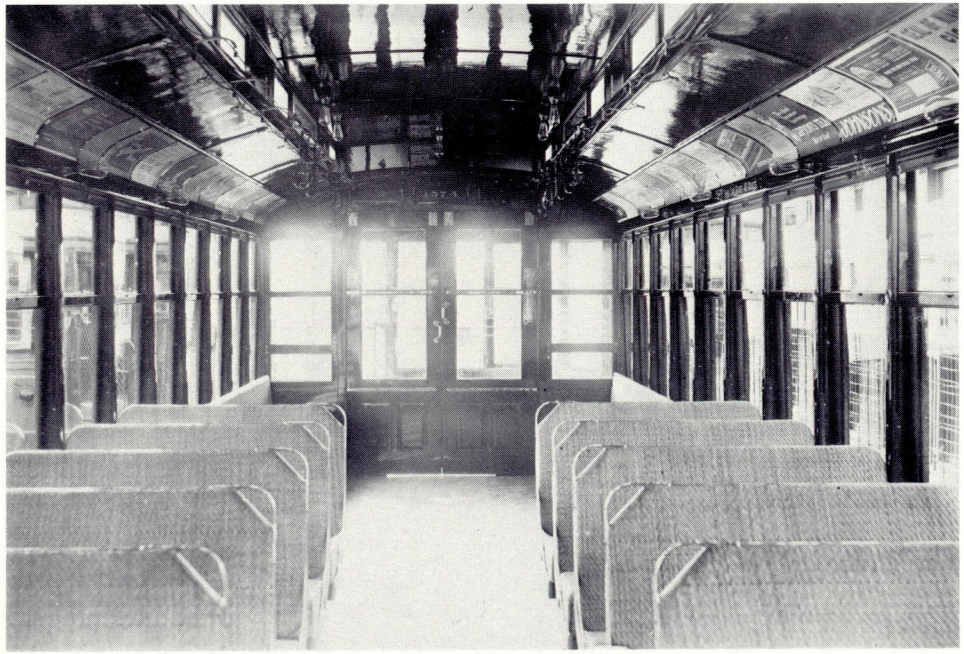
Above: Rear platform, step and gate detail of a Class G-6 car. (TCRT)

Below: Twin City hot water heater located in the motorman's cab of a Class L-8 car. The lever protruding from the floor in the far right foreground is the snow scraper control. (TCRT)



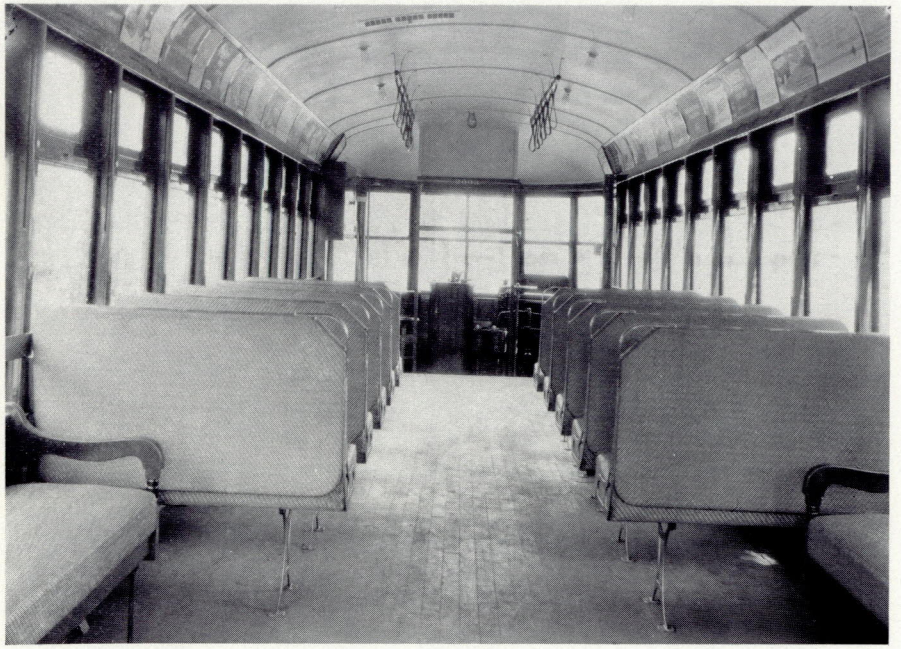
Left: Interior of car 957 looking toward the front. Lettering on the sliding bulkhead door to the motorman's cab reads "Built By" "Twin City Rapid Transit" "Company". Interior woodwork was birch with cherry finish, with ceiling of natural wood finish and cherry striping, varnished. (Sweet Studios; Minnesota Historical Society collection)

Right: Interior view of a Class E-4 car on the "Minnehaha Falls" line. Motorman Herman Reetz is seated on the right. (Harold Reetz)



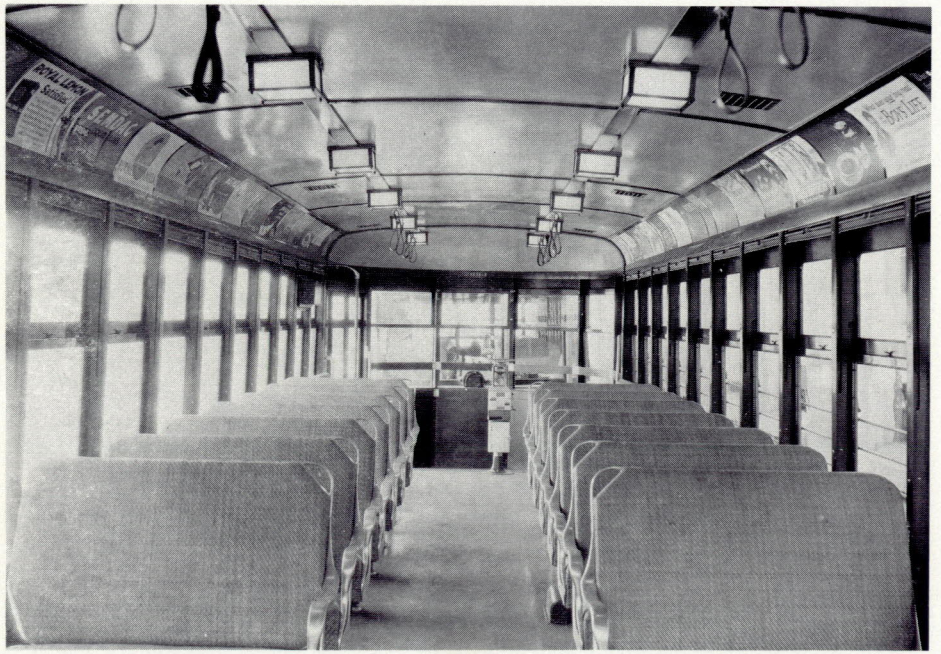
Left: Interior view toward the rear of car 1574 with the bulkhead doors closed. (TCRT)

Right: Interior view of Duluth St. Ry. car 223, Class L-8, with sliding motorman's cab door, showing the offset bulkhead door designed with the front exit in mind. All Class L-8 cars were built with this feature. (Joe Hutchinson collection)



Interior view toward the front of 2003. (TCRT)

Interior view toward the front of car 2. (TCRT)



Interior view toward the rear of 2004. Note the offset fare box stanchion for two man operation. (TCRT)

Close-up view of the front platform of newly completed 2006. (TCRT)

Trolley Bases

G.E. #6: 737-772, 786-788, 797-1111, and 1124-1144; Sterling: Private Car, 773-785, 1112-1123 and 1169-1195; G.E. R.B.: 1145-1168 and 1196-1481; G.E. #13: 1482-1855, 2000-2001, and 1-4; U.S. #15: 2002-2003; and U.S. #20: 2004-2030.

Trolley Wheels

4" diameter wheels were used on 737-788 and 797-1429. TCRT then began manufacturing 7" diameter wheels and these were placed on all subsequent cars from 1430 upwards. 1112-1429 were next re-equipped with 7" wheels (Stillwater Division cars received them during 1910) and eventually most older cars received them. In 1918 a trolley shoe was tested on 1760 but found unsatisfactory. Sleet scrapers were carried on all cars during the winter months.

Heaters

Hot water heater heaters were located in the motorman's cab on the front platform. Extra coal was kept in several buckets in the cab and replenished from coal boxes located at the wyes at the ends of lines. Baker heaters were used on 737-1290, Peter Smith on 1291-1685, and TCRT-built heaters on 1686-1855 and 2000-2001.

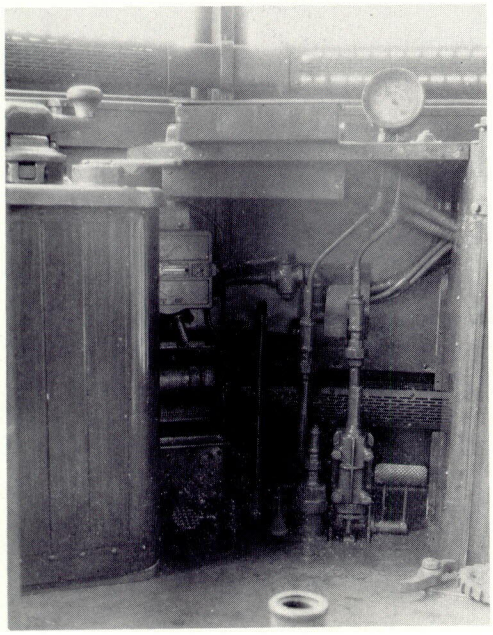
A combination of electric heaters and resistor heating was used on 2002-2030 and 1-4.

Exterior Paint Scheme

Body: Light Chrome Yellow. Trim above the floor line: Medium Brown and Olive Brown. Body and roof window sash: Cherry. Roof canvas: Red Iron Oxide. Equipment below the floor line, bumpers, gates, steps, headlight, trolley retriever, truck frames, etc.: Moss Green. Numbering and striping: Aluminum, with Bronze outlining around the numbers.

After 1920 the striping was discontinued and the numbers painted in Medium Brown; motorman's cab doors were painted Moss Green.

Folding doors on the lightweight cars had a Natural Wood finish until 1948 when they were painted Yellow.



Photograph of the foot-pedal operated air brakes experimented with on the lightweight cars. (TCRT)

Railroad-style Pilots

These were used on the Private Car, 868-874, 1112-1123, 1145-1163, 1255-1265, Work Cars 11-12, Baggage Car 34, and the University of Minnesota Switch Car.

Classification Lights and Marker Brackets

These were installed on cars assigned to the various suburban lines; a summarization of the known uses follows.

Oil classification lamps for the "St. Louis Park" line: 752 and 760-765 (1910); 910-913 and 1539-1541 (1913).

Marker brackets for "St. Louis Park" and "Robbinsdale" lines listed in estimated chronological sequence: 827-832, and later, 1367-1374 ("St. Louis Park"); 1032-1037, and later, 1391-1397 ("Robbinsdale"); 814-816, 910-914, and later, 1538-1544 ("Robbinsdale-St. Louis Park"); and 1180-1192 ("St. Louis Park" and "Robbinsdale").

Marker brackets for Stillwater local lines: 868-874.

A bulletin dated March 11, 1910 stated that all cars on the Stillwater and Lake Minnetonka Divisions were being equipped with electric classification lights. This involved 1112-1123, 1145-1163, 1260-1265, and apparently 1164-1168. (1255-1259 were so equipped later when they became high-speed suburban cars.) (1164 was subsequently switched back to marker brackets.) The following equipment was needed for each car: two yellow targets, two green targets, two white targets, two green lenses, and two white lenses for the classification light castings; and red targets with silver numbers 1 through 10 (to designate run numbers). The marker brackets being taken off these cars were to be used on the telephone booths (purpose unspecified).

Another bulletin dated March 29, 1910 stated that new cars 1421-1430 were being assigned to E. 7th St. Station for "Stillwater extras". The signal light brackets, targets, lamps, etc. being removed from regular "Stillwater" cars were to be placed on these cars. A further bulletin dated May 20, 1911 stated that 1416-1424 had been used during 1910 on the "Stillwater" line; the brackets were to be removed from 1416-1420 and placed on 1425-1429, and new brackets were to go on 1430-1435.

Marker brackets were also installed on cars 1370-1386 for the Lake Minnetonka Division; 1289-1332 (at E. 7th St. Station) for the "St. Paul-Wildwood" service; 1079-1084, and later, 1189-1194, for the "Intercampus Special" line.

The Private Car, Work Cars 11-12, Wire Cars 3-5 and 72, Underground Wire Crew's Work Car 33, and Sand Cars 43-45 had electric classification lights. Most, if not all, the Work Cars had marker brackets, as did Baggage Car 34, Wrecker-Crane 21, Refuse Car 49, and all Snow Plows except 75-82. All Snow Plows had electric combination clearance and classification lights.

SUMMARY OF ALL CAR BUILDING PROGRAMS

Private Car		1 car
Class B-3	(737-788, 797-867, 900-949, and Duluth St. Ry. 151-162)	185 cars
Class B-5	(950-951)	2 cars
Class C-3	(868-899)	32 cars
Class D-7	(952-991; Duluth St. Ry. 163-177)	55 cars
Class D-4	(992-1041)	50 cars
Class E-4	(1042-1111 and second 1043)	71 cars
Class F-4	(1112-1144)	33 cars
Class G-6	(1145-1220; Duluth St. Ry. 183-197)	91 cars
Class H-6	(1221-1290)	70 cars
Class I-1	(1291-1309; Duluth St. Ry. 198-203)	25 cars
Class J-2	(1310-1359)	50 cars
Class K-2	(1360-1379; Duluth St. Ry. 204-214)	31 cars
Class K-8	(1380-1485; Duluth St. Ry. 215-219)	111 cars
Class L-8	(1486-1855; second 1482-1485, 1564-1566, 1713, 1716, 1719, 1722, 1724, and 1789-1792; Duluth St. Ry. 222-237, 242-251, 257-262, and 271-278; M. A. & C. R. Ry. 1-2)	428 cars
Class M-9	(2000-2001)	2 cars
Class P-14	(2002-2003)	2 cars
Class ?	(2004-2030)	27 cars
Duluth St. Ry. incline railway cars (163, 220, 221)		3 cars
Lightweight Noiseless Electric Street Car Co. cars: Duluth St. Ry. 301-305, Twin City Rapid Transit Co. 1-4 (Class P-10), Chicago Surface Lines 50 cars, Grand Rapids R.R. 1 car, Tennessee Electric Power Co. 20 cars, and Southern Indiana Gas & Electric Co. 13 cars)		93 cars
Total Passenger Cars built		1,362 cars
Service Equipment (3-5, 7-25, 29-38, 43-56, 58-59, 61-70, 72, 75-82, U. of M. Switch Car, and St. P. S. E. Ry. Loco-Work Car-Snow Plow)		69 cars
Total Cars built		1,431 cars

(Cars built originally for the Duluth St. Ry. and Lightweight Noiseless Electric Street Car Co. are treated in detail in those sections of this book.)

Classes B-3 through L-8 constituted what was termed the Standard Passenger Car, of which 1,234 were built. 1140 were originally built for TCRT, 92 originally built for DSR, and 2 originally built for the M.A. & C.R. Ry. The following table summarizes the disposition of the 1140 TCRT cars.

Rebuilt with front exit doors	590 cars
Rebuilt for one/two man operation	81 cars
Rebuilt as special one/two man cars (1124-1128, 1131)	6 cars
Rebuilt to double end cars (1129,1230)	2 cars
Wrecked or burned	18 cars
Sold	112 cars
Rebuilt to Service cars	3 cars
Rebuilt to Trailers	26 cars
Sold for scrap	243 cars
Dismantled and burned	59 cars
Total	1140 cars

2. Rebuilding and Modification Programs

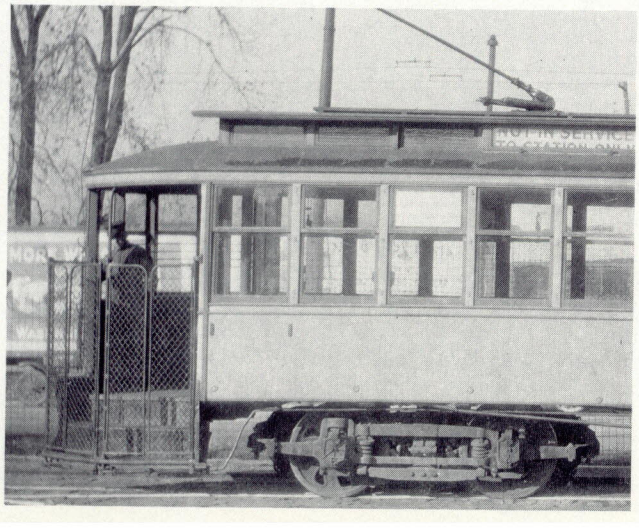
Based on the results obtained from the rear step and gate design used on 950-951 many of the older cars were fitted with new #5 rear step and gate assemblies, featuring wider steps and two pair of folding gates instead of one pair. This work was done from 1903 through 1908 on the following.

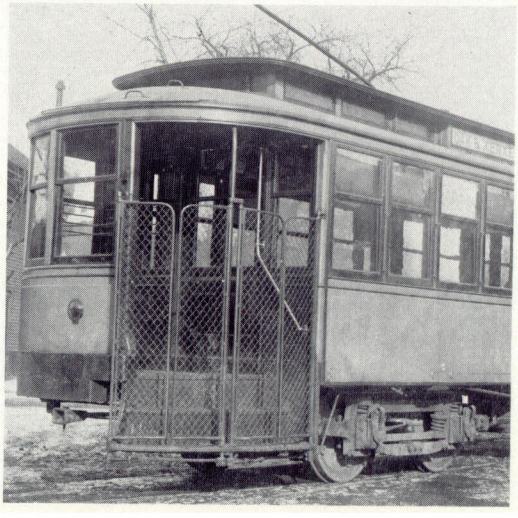
Class B-5 (formerly Class B-3): 80 cars, 737-788, 817-831, 900-904 and 942-949. (#5 step with two pair of gates opening 32" each). On 737-788 the straight rear platform was rebuilt with an 8" drop platform, steel reinforced. (All other cars with a 5½" rear drop platform may have had steel reinforcing added, but this is uncertain.)

Class C-5 (formerly Class C-3): 32 cars, 868-899. (#5 step with two pair of gates opening 33" each).

The two double-deck cars were permanently rebuilt back to standard cars during the winter of 1907-1908: 1092, Class E-4 (repainted December 31, 1908); and 1145, Class G-6 (repainted March 25, 1909).

Two methods of installing the #5 step and gates on Class B-3 cars converting them to Class B-5: car 780 left, and 827 right. Both cars have Twin City trucks. (TCRT)





Cars 897-899 were permanently rebuilt for double end operation during 1910 for use on the "Robbinsdale Extension" and "Camden Extension" lines operated out of East Side Station. 898 later was assigned to Lake St. Station for the newly opened "E. 25th St." shuttle line. Rebuilding consisted only of adding another trolley base with pole, controller, headlight and air brake valve; doors and gates were left as is on the gate side only.

890 was temporarily converted to double end operation in 1911 for use as a shuttle car on the "Oak St." line because sewer and water construction had cut the line into two sections.

Work Car 12 was equipped with a cab extension in December, 1911, for the protection of track crews riding to construction projects during the winter months. Work Cars 7, 13, 15, 17, and 52 were also later equipped this way.

Rail Grinder 35 was converted to a Sand Blasting Car in March, 1911; one Allis-Chalmers Christensen D-4 air compressor was added.

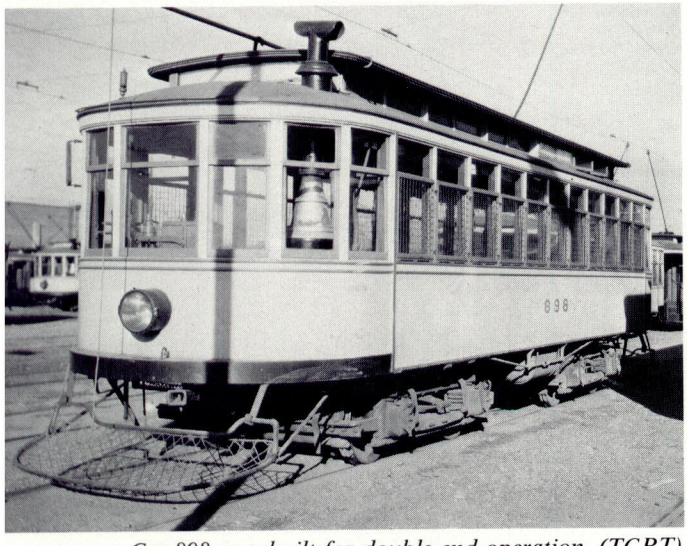
Cars 813 and 896 were rebuilt for double end operation in 1912 (in same manner as 897-899) for use on the "Fort Snelling Extension" line. Cars 992-993 were temporarily converted for double end operation in 1912 for use on the newly-opened "E. 25th St." shuttle line in Minneapolis; 993 was later transferred to East Side Station for use on the "Robbinsdale Extension" line.

Car 893 was temporarily converted in 1913 for double end operation for use on the "St. Louis Park" line providing the Calhoun Beach shuttle service. It was also used on the "South Stillwater" line during State Fair Week 1913.

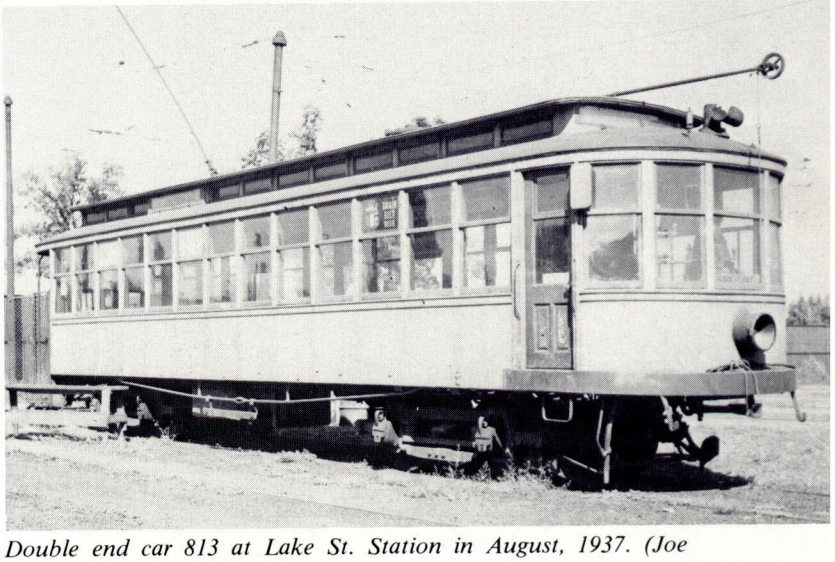
Car 894 was temporarily converted for double end operation in 1914 as a spare car for the shuttle service on Prior Ave. in St. Paul. Car 897 which had been used for this service was then transferred to E. 7th St. Station for use on the "Burns Ave. Extension" line.

Cars 875-876 were permanently rebuilt for double end operation (in same manner as 897-899) during 1916 for use on the "Randolph Extension" line in St. Paul.

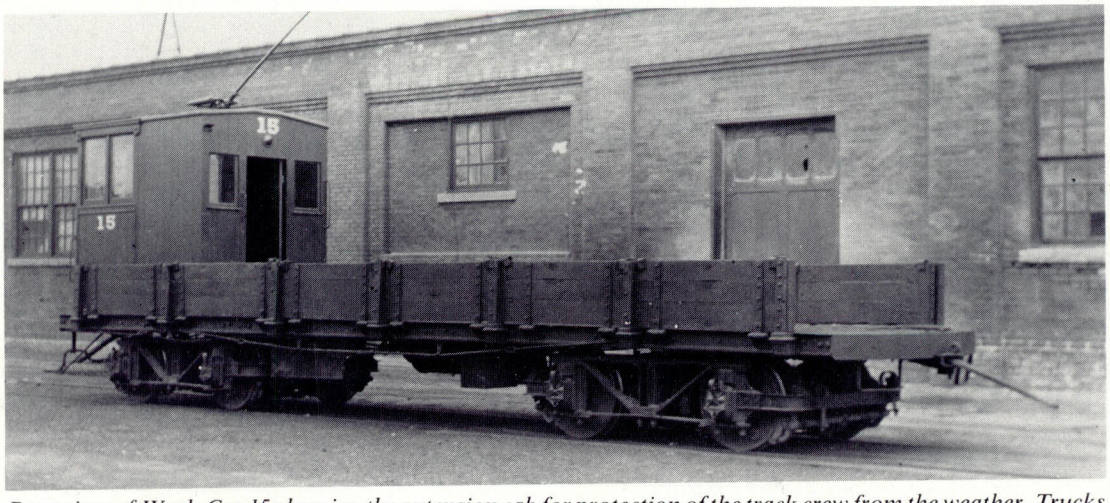
Car 952 was stripped of motors and controller in 1916



Car 898 as rebuilt for double end operation. (TCRT)



Double end car 813 at Lake St. Station in August, 1937. (Joe Hutchinson collection)



Rear view of Work Car 15 showing the extension cab for protection of the track crew from the weather. Trucks are Twin City Work Car with outside hung brakes. (TCRT)

for use as a Trailer; it was re-numbered 1590A and coupled to Car 1590. This motor-trailer set ran in competition with new lightweight train 2000-2000A to see which gave better service. The motor-trailer idea won the contest.

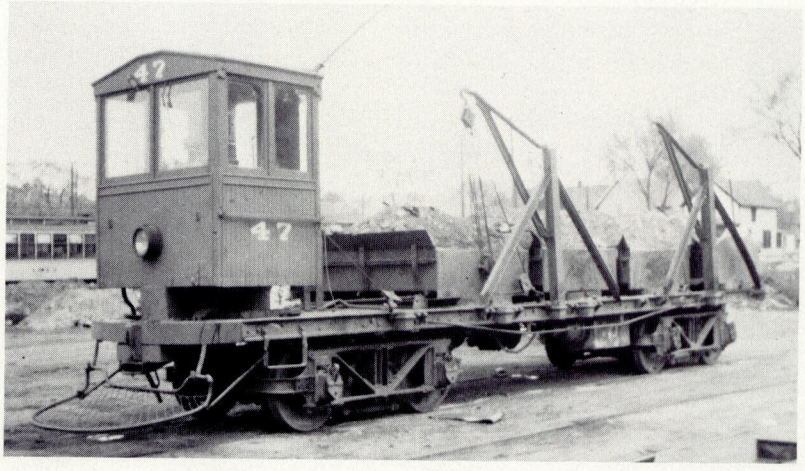
Work Cars 46-48 were rebuilt at times for which dates are unknown. For sake of convenience this work is summarized at this point.

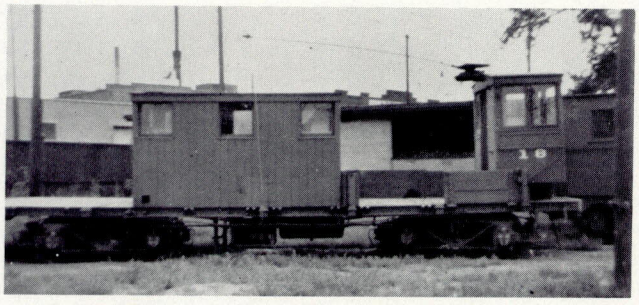
46 was equipped with a weed cutter on the front end. (May have come from car A-13 in 1936.)

47 had the side stakes and drop panels removed. Four individual steel dump containers were mounted on the deck, attached by hinges on one side so that each could be lifted to a tilting position in order to dump the load. Two crane hoists mounted on the "pole side" of the car, one crane between two containers, were used to lift the containers for dumping purposes.

48 was fitted with a cab on the rear platform for use as a combination Wire Car-Wrecker. It was used by the Track Dept. in summer and by Owen St. Station as a Wire Car in the winter until replaced by 72 in 1917. After 1917 it was used as the Owen St. winter Sand Car and summer Wrecker until 1932 when it was transferred to North Side Station as a Wrecker.

Car 1788 was rebuilt during 1918 with front exit sliding





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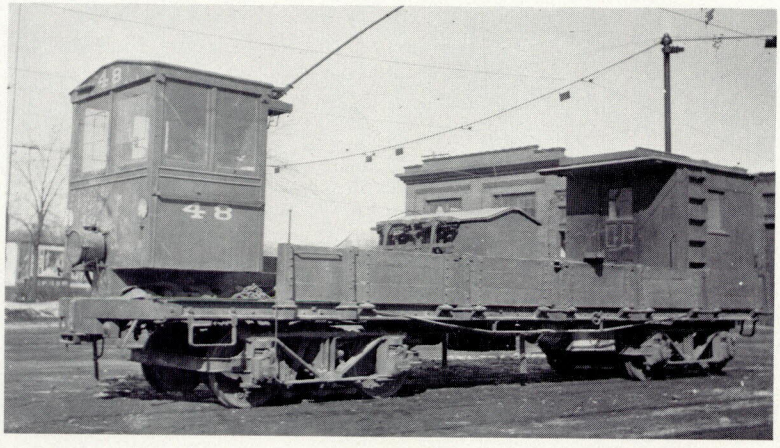
Above left: Work Car 46 equipped with weed cutting attachment. (Robert Schumacher)

Above right: Work Car 47 rebuilt with four individual dump boxes. The block and tackle attached to the crane booms was operated by a hand-powered winch located behind the motorman's cab. (Russell L. Olson)

Left: Work Car 18 rebuilt into a Sand Car. (Edwin H. Nelson)

Below left: Work Car 48 rebuilt to a Wire Car-Wrecker-Sand Car. (James Foster collection)



Facing Page

Above: Car 1788 with front exit sliding door and the first underfloor hot air heater, exhausting through a rear roof-mounted smoke jack. (TCRT)

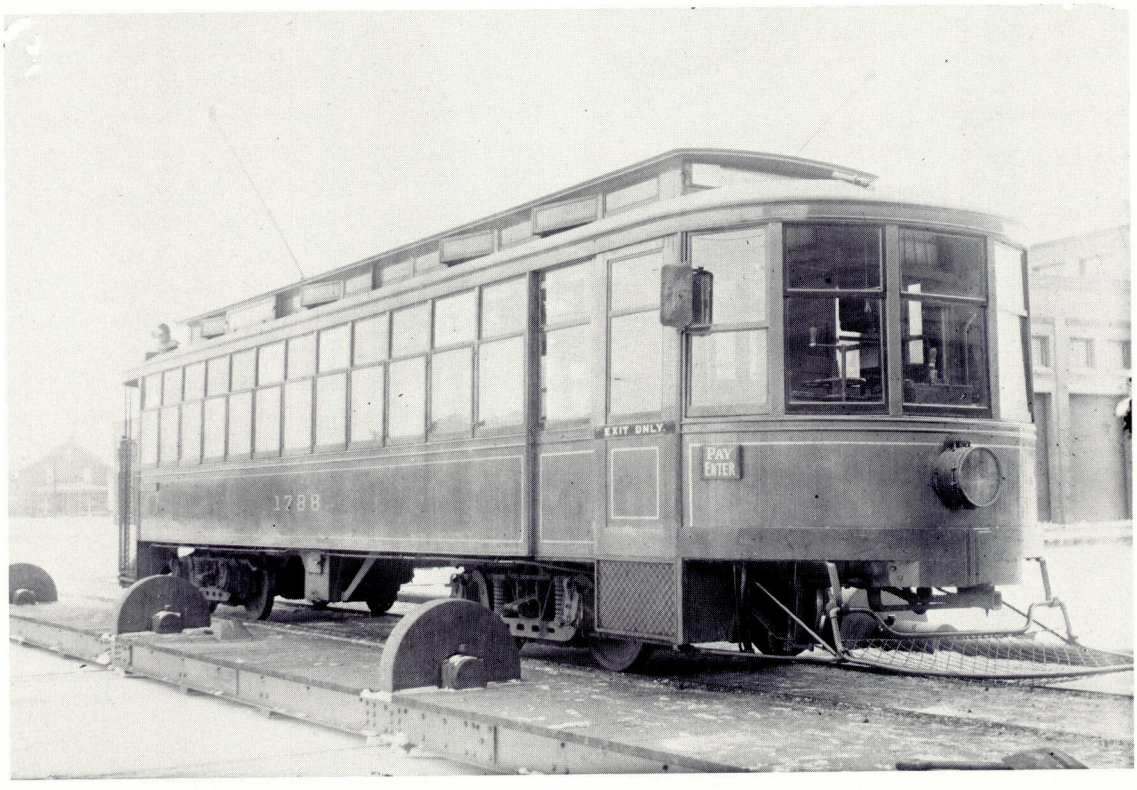
Below: Car 1788 as again rebuilt with the first front exit folding doors; Twin City #9 trucks. (TCRT)

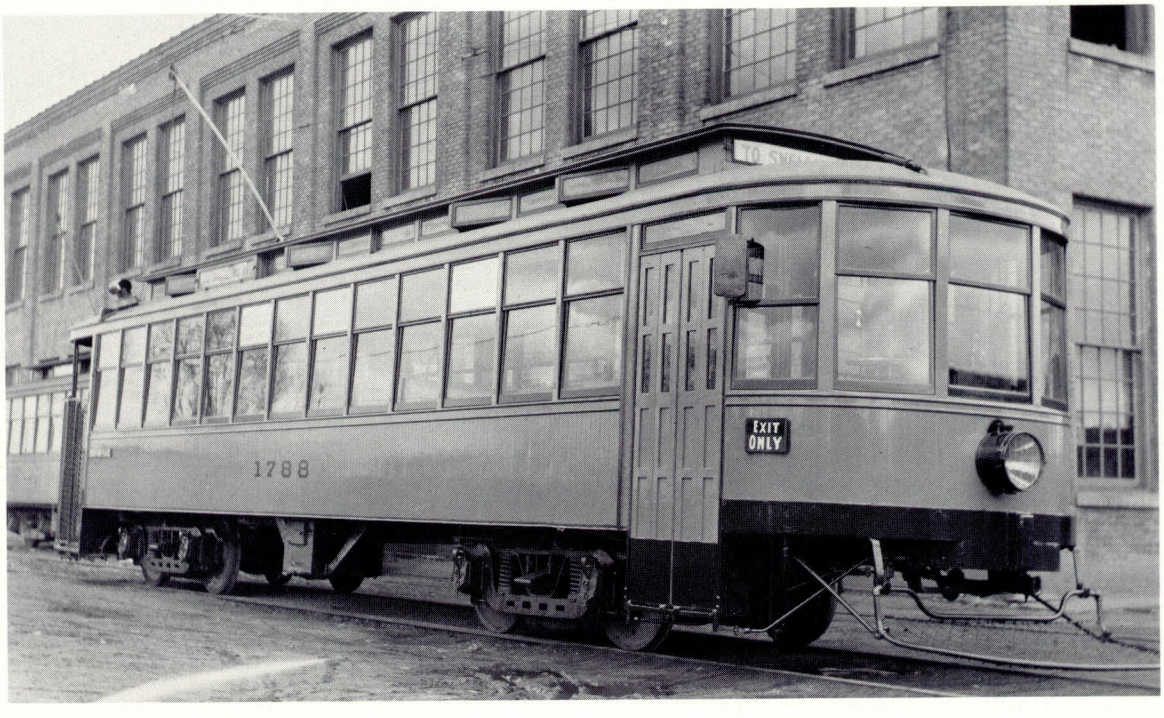
door and step; the appearance was the same as that used on 1450 in 1911 but with mechanical improvements. This did not work out satisfactorily so the sliding door was replaced with two pair of narrow folding doors mechanically operated by the motorman. This proved successful and led to the decision to rebuild a major portion of the car fleet with folding front exit doors.

Car 847 was permanently rebuilt for double end operation (in same manner as 897-899) and assigned to Lake St. Station. This was done to provide one large double end car at each operating station.

Work Car 12 was used as a Sand Car at Nicollet Station during the winter of 1920-1921.

Car 1590 with Trailer 1590A (ex 952) retained the





motorman's cab doors. During October, 1920, each car was equipped with front exit folding doors and steps. This was part of the program described in the next paragraph.

A decision was made to replace the motorman's cab door with front exit folding doors and steps on the 300 newest cars. The motor-trailer train was first done (1590-1590A) and then work began in October, 1920, on the regular cars. This work was to continue through October, 1921. Cars actually completed during 1920 were: 1559, 1572, 1584, 1588, 1591, 1606, 1629, 1661, 1665, 1677, 1694, 1718, 1722, 1733, 1740, 1745, 1749, 1758, 1769, 1771, 1779, 1789, 1792, 1814, 1823, 1833, 1838, 1839, 1847 and 1850.

In 1921 it was decided to convert existing equipment into 25 additional motor-trailer trains similar to 1590-1590A. This was to be done as part of the program begun in 1920 for rebuilding standard cars with front exit folding doors and steps. 240 cars were rebuilt with front exits and then work commenced on the 25 trains. Cars 737-761 were rebuilt into Trailers, July through September, 1921; they received Twin City #11 trucks and weighed 24,900 lbs. each. All were re-numbered:

Old No.	New No.	Old No.	New No.
737	215	750	209
738	214	751	212
739	207	752	216
740	202	753	217
741	210	754	218
742	206	755	219
743	208	756	220
744	204	757	221
745	200	758	201
746	203	759	222
747	211	760	223
748	205	761	224
749	213	952	225 (Ex 1590A)

Measurements were: length of each platform 6'0", length of body 33'2⅛", length overall 45'2⅛", and width 8'8¾".

At the same time (July through September, 1921) motor cars for the trailers were rebuilt from cars still requiring front exit door/step work. (It should be noted that on those motor cars, the triple rear gates and steps had to rebuilt to double rear gates and steps because of curve clearance limitations when pulling trailers.) However consecutive train numbers were desired from 1600-1625 so that motor 1600 would be permanently coupled to trailer 200, etc.; a re-numbering of cars was performed: cars merely exchanged numbers except in three instances where some switching around occurred.

The cars rebuilt as motor cars for the motor-trailer trains were:

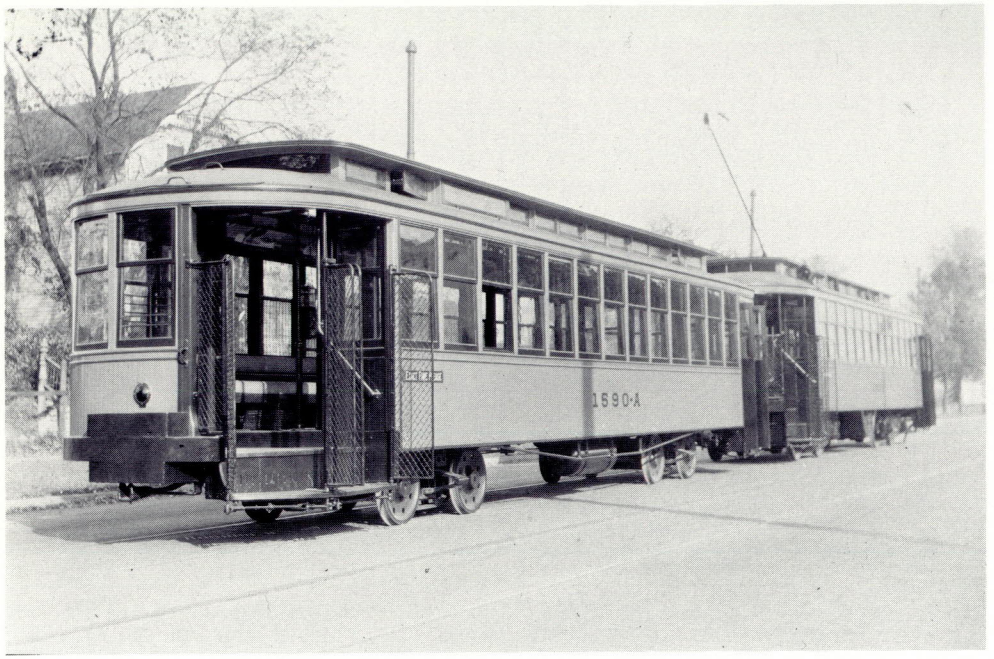
1599 — re-numbered 1601
1600
1603
1626 — re-numbered 1604
1605
1630 — re-numbered 1606
1607
1633 — re-numbered 1608
1640 — re-numbered 1609
1642 — re-numbered 1610
1644 — re-numbered 1611
1650 — re-numbered 1612
1655 — re-numbered 1613
1614
1615
1669 — re-numbered 1616
1617
1670 — re-numbered 1618
1671 — re-numbered 1619
1620
1699 — re-numbered 1621
1622
1766 — re-numbered 1623
1701 — re-numbered 1624
1625 — re-numbered 1602

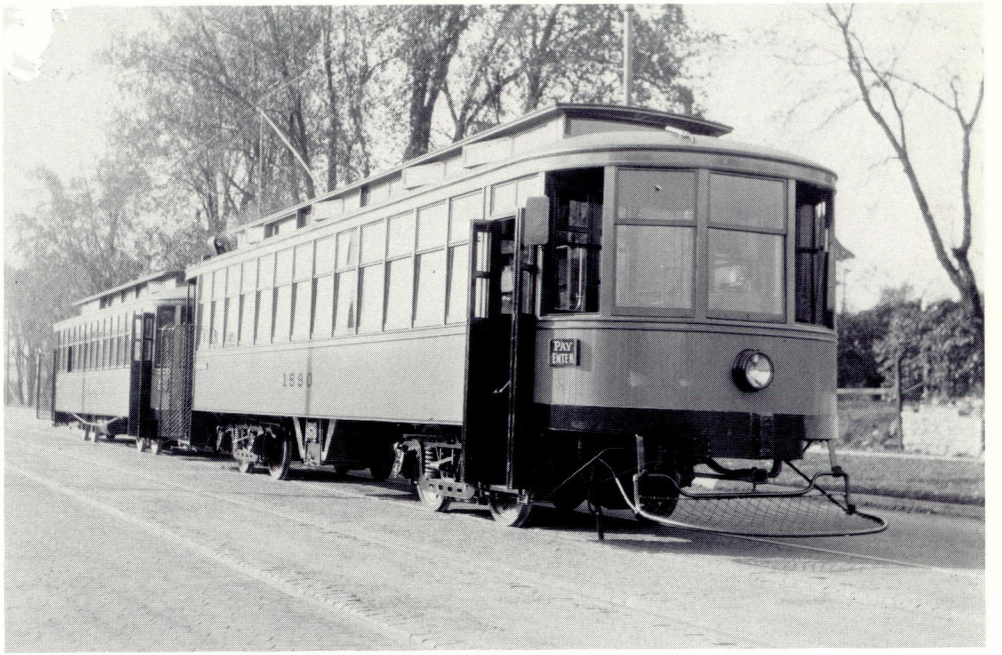
Already rebuilt 1590 was then re-numbered 1625. The door control system was: motor car doors and gates manually operated by the motorman; trailer gates operated manually by the trailer conductor, and trailer front exit doors electrically operated by the trailer conductor. (These motor-trailer trains were used mostly on the "Glenwood-4th Ave. So." line in Minneapolis from 1921 through 1933.)

Cars rebuilt with front exit folding doors and steps from January through October, 1921 (as part of the original program) were as follows: 1554-1558, 1560-1571, 1573-1583, 1585-1587, 1589, 1592-1598, 1601 — re-numbered 1599, 1602 — re-numbered 1590, 1604 — re-numbered 1626, 1608 — re-numbered 1633, 1609 — re-numbered 1640, 1610 — re-numbered 1642, 1611 — re-numbered 1644, 1612 — re-numbered 1650, 1613 — re-numbered 1655, 1616 — re-numbered 1669, 1618 — re-numbered 1670, 1619 — re-numbered 1671, 1621 — re-numbered 1699, 1623 — re-numbered 1766, 1624 — re-numbered 1701, 1627, 1628, 1631-1632, 1634-1639, 1641, 1643, 1645-1649, 1651-1654, 1656-1660, 1662-1664, 1666-1668, 1672-1676, 1678-1693, 1695-1698, 1700, 1702-1717, 1719-1721, 1723-1732, 1734-1739, 1741-1744, 1746-1748, 1750-1757, 1759-1765, 1767-1768, 1770, 1772-1778, 1780-1787, 1790-1791, 1793-1813, 1815-1822, 1824-1832, 1834-1837, 1840-1846, 1848, 1849, and 1851-1854.

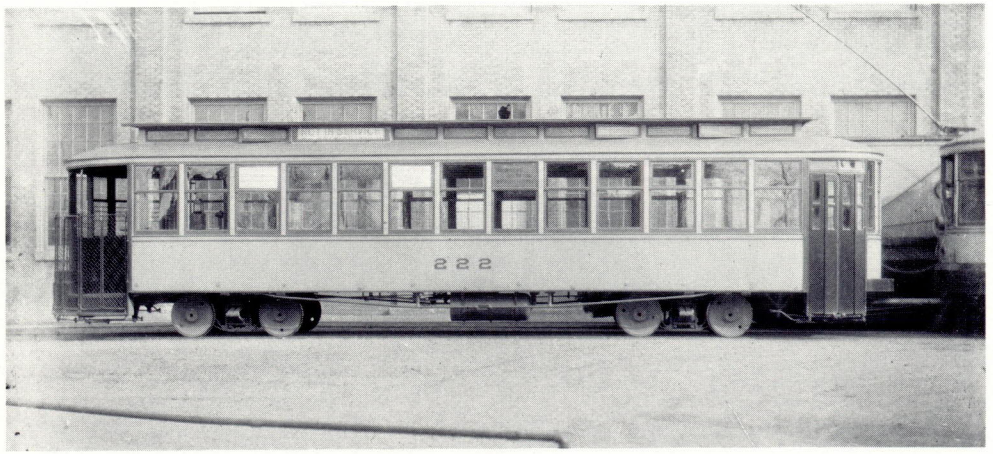
Car 762 was rebuilt to Supply Car 2 in November, 1921, replacing *old* Supply Car 2 which was placed in the Snelling Shops Storage Shed. The new Supply Car was equipped with Brill 02 trucks, four G.E. 67 motors, K-6 controller and weighed 43,800 lbs.

2000 and 2000A (re-numbered 2001) were rebuilt during July, 1921. Each car received narrow front exit folding doors and steps at the front, and two pair of wide folding doors and steps at the rear.

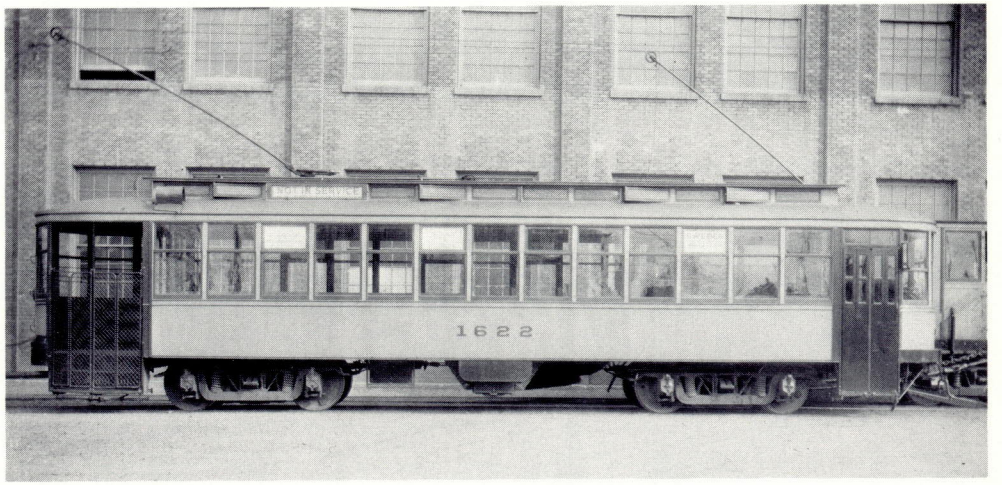




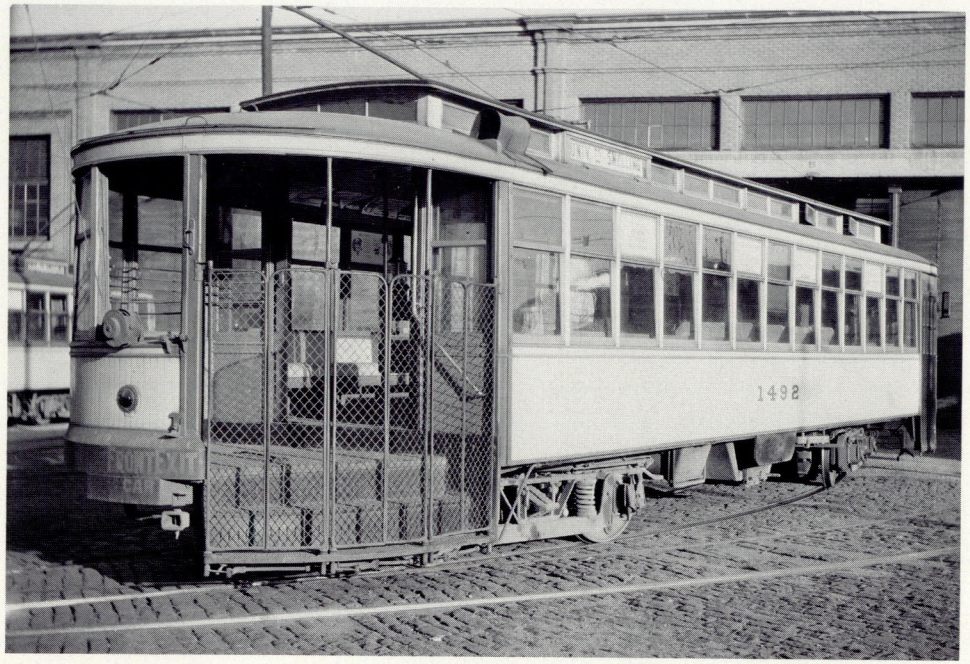
Two views, front and rear, of the experimental motor-trailer train, 1590-1590A, in October, 1920. On 1590 note the third pair of gates and step had been removed and replaced with a screen and extension of the bumper. This was required for clearance on curves. (TCRT)



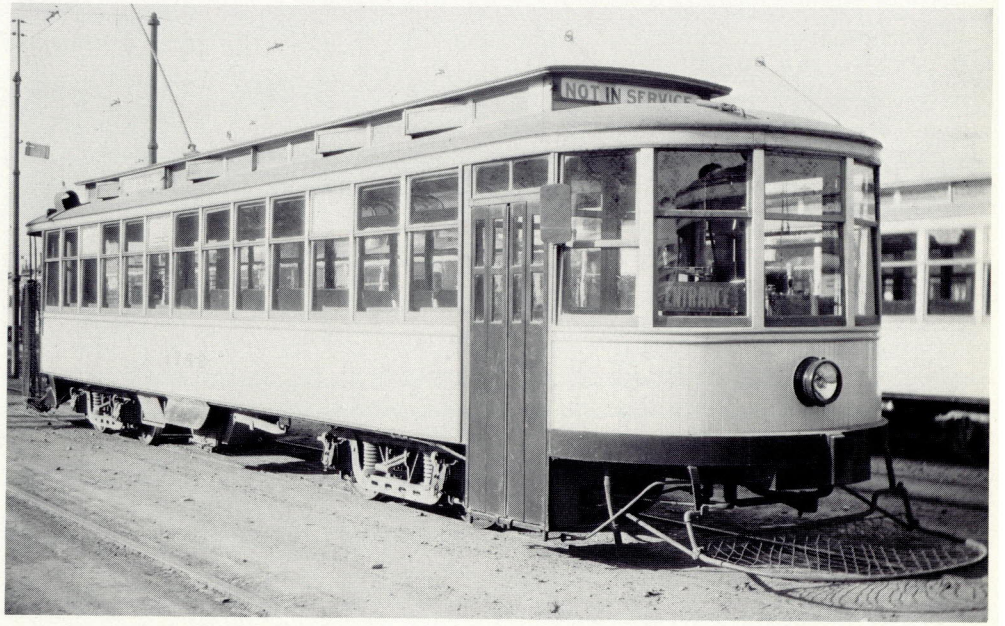
Trailer 222. (TCRT)



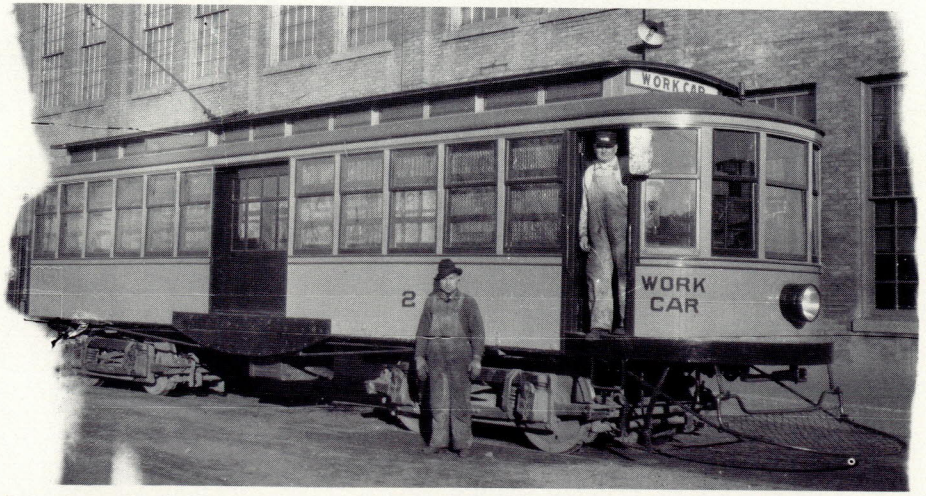
Motor car 1622. (TCRT)



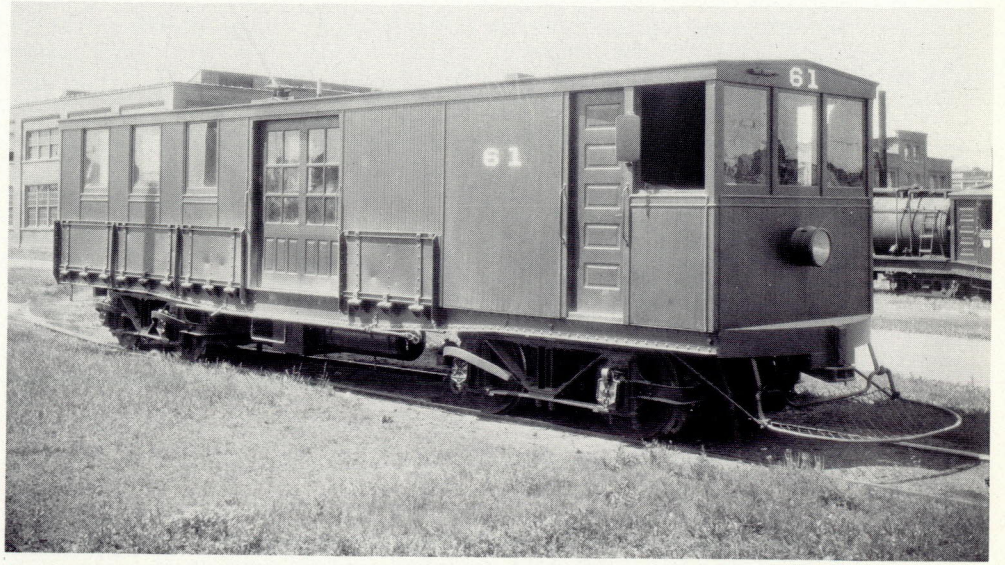
Rear view of car 1492 rebuilt with front exit steps and folding doors. Note the mail box brackets on the rear body corner-post, and sheet metal cover for the smoke jack on the roof over the rear-most body window. Electric tail lights, with battery operated standby system, were first installed in June, 1911. (TCRT)



Car 1742 rebuilt with front exit steps and folding doors. Crouse-Hinds Golden Glow incandescent headlights were first installed in December, 1920, on cars being rebuilt with front exits. (TCRT)



Car 762 when rebuilt to Supply Car 2, the first number 2 having been removed from service and placed in storage. (TCRT)



Car 61 rebuilt into a Supply Car. Note the journal box protectors on the trucks to prevent damage from the drop side-panels. (TCRT)

It was decided to rebuild another 75 cars with front exit folding doors and steps: 1479-1553. Work began in December, 1922, and continued through May, 1923. Completed in 1922: 1482, 1485, 1490, 1505, 1519, 1530-1532, 1545, 1547, and 1548. Completed 1923: 1479-1481, 1483, 1484, 1486-1489, 1491-1504, 1506-1518, 1520-1529, 1533-1544, 1546, and 1549-1553.

In November, 1923, Cars 2002-2003 were separated so that each car could be operated individually, or the two cars could operate together as a two-car train. The original equipment was replaced with four G.E. 258 motors and one K-75 controller on each car. The revised weights were: 2002 = 28,800 lbs.; 2003 = 28,500 lbs.

An additional 75 cars were scheduled for rebuilding with front exit folding doors and steps. Work began in November, 1923, and continued through February, 1924: 1404-1478. Completed 1923: 1404, 1406, 1412-1415, 1417, 1422, 1426, 1429, 1433, 1436, 1441-1442, 1444-1445, 1448, 1451-1453, 1458, 1461, 1463, 1464, 1466, 1468, 1470-1472 and 1476-1478. Completed 1924: 1405, 1407-1411, 1416, 1418-1421, 1423-1425, 1427, 1428, 1430-1432, 1434, 1435, 1437-1440, 1443, 1446, 1447, 1449, 1450, 1454-1457, 1459, 1460, 1462, 1465, 1467, 1469 and 1473-1475.

During May through July, 1924, an additional 75 cars were rebuilt with front exit folding doors and steps, completing the program begun in 1920: Cars 1329-1403.

Work Cars 14, 16, and 18, were rebuilt during January, 1925, with a large cab in the center of the car containing machinery and storage bins for use as Sand Cars.

Also during 1925, Cupola Cars 58 and 61 had the thermite rail welding machinery completely removed and were rebuilt into Supply Cars for hauling bags of cement and rock salt. As rebuilt they were equipped with Twin City Work Car trucks, four G.E. 70 motors, K-37 controller and weighed 42,860 lbs.

64 cars, 1254 and 1266-1328, were rebuilt during July through December, 1928, with front exit folding doors and steps; in addition 1254 and 1266-1309 were fitted with triple rear gates and steps (1310-1328 were originally built that way). All cars were then re-classified as Class I-8: #8 rear step with three pair of gates opening 28" each. Length overall was 46'0", with the body measuring 33'6⅝", the rear platform 6'3⅛", and front platform 6'2¼" long. Width was 9'2½". All were equipped with Twin City #9RB trucks (built new), four G.E. 203G motors, 16:68 gear ratio, K-43-F2 controller, and weighed 46,140 lbs.

Also during 1928 the early lightweight cars were rebuilt.

Cars 2000-2001 were permanently separated, each car being rebuilt with two pair of wide folding doors and steps on both front and rear platforms. Equipment consisted of Twin City #12RB trucks (built new), G.E. 258 motors, K-75 controller and weight 30,680 lbs.

Cars 2002-2003 were permanently separated, with each car being rebuilt with two pair of wide folding doors and steps on both the front and rear platforms. Each car received Twin City #12RB trucks (built new).

Cars 2004-2005 were permanently separated and modified to conform to 2006-2030 in appearance.

As early as July, 1926, the Master Mechanic was receiving complaints that the 1100 series cars used on the "Jackson St." line in St. Paul required constant daily repairs to the roof canvas on the pole sides of the cars. The narrow track center on Jackson St. between 13th and 14th St. was causing the cars to rub together if they happened to pass at that location. It was not until 1929 that the bodies of cars 1124-1133 were moved 1" off center to prevent this.

The lightweight cars were previously equipped for either one or two-man operation. The interior arrangements were modified for exclusive one-man operation as follows: 1930: 2006-2020 and 2023; and 1932: 2000-2005, 2021, 2022, and 2024-2030.

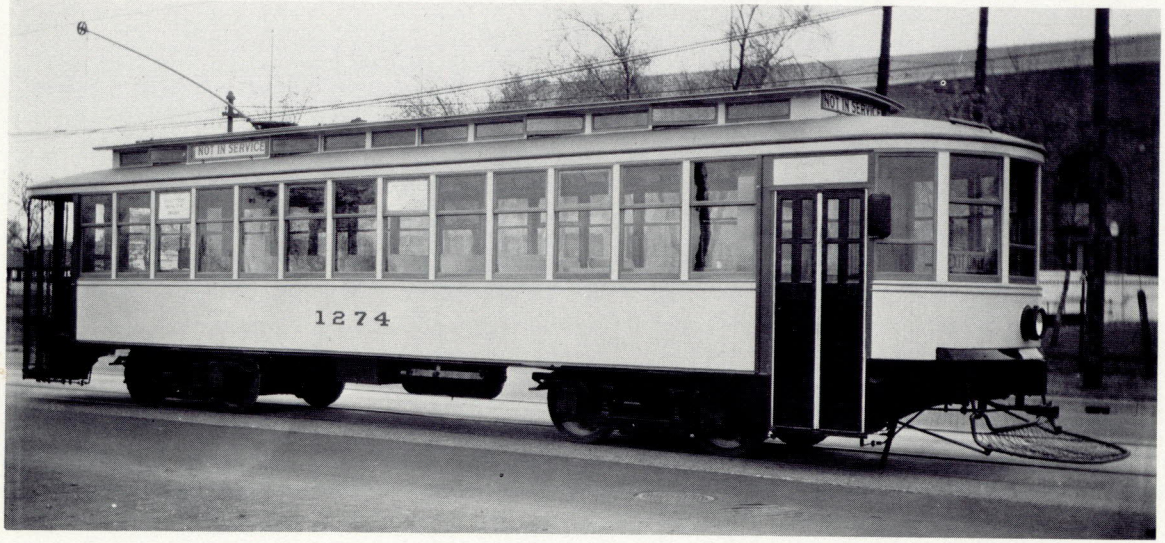
By the summer of 1930 some of the trailers of the motor-trailer trains had been disconnected and the motor cars ran alone. During 1930 1622/222 — 1625/225 were permanently disconnected. It was intended to make 1600/200 — 1608/208 and 1610/210 permanent trains and accordingly cross seats were installed in the trailers. The remaining trains were connected during the winter months only. On April 1, 1931, 1612/212 — 1619/219 were permanently disconnected. In the spring of 1933, the last of the motor-trailer trains, 1600/200 — 1611/211, 1620/220 and 1621/221 were permanently disconnected.

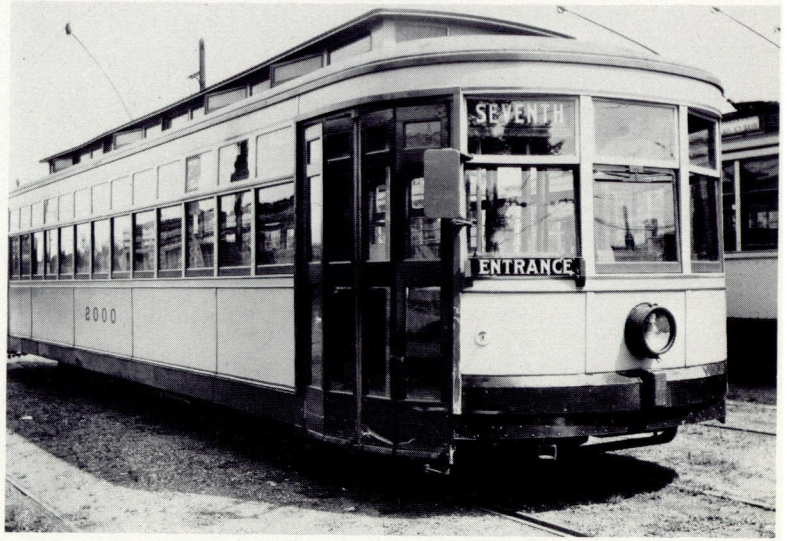
Car 1230 was rebuilt during September, 1931, for double end operation on the Deephaven line as a shuttle car. The motorman's cab door and double rear gates and steps were removed and replaced with two pair of narrow folding doors and steps on each platform on the "gate side" only. Measurements were: length overall 46'3⅛", with the body 33'6⅝" and each platform 6'4¼" long; width 9'2½". Equipment consisted of Twin City #8 trucks, four G.E. 70 motors, 15:71 gear ratio, two K-28-B controllers (later replaced with two K-37-C controllers) and weight 48,700 lbs.

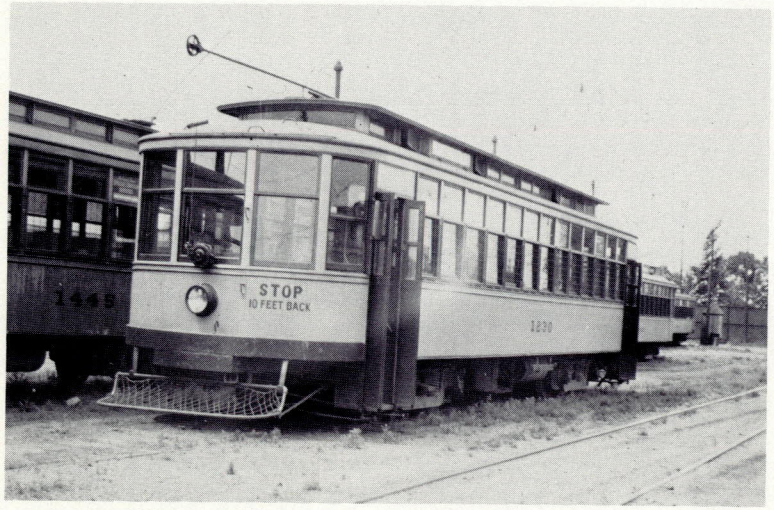
Car 1854 was rebuilt for one/two man operation as a test car, being completed May 20, 1931. The car retained the triple rear gates and steps but the narrow front exit doors were replaced with two pair of wide folding doors and steps. The triple rear gates were (after experience with 1328) subsequently replaced with two pair of wide folding doors and steps identical to those on the front platform.

Car 1328 was next rebuilt for one/two man operation, with two pair of wide folding doors and steps on both the front and rear platforms, being completed June 30, 1931. It should be noted that this car was one of the latest front exit cars having been rebuilt as such during 1928.

One/two man cars 1328 and 1854 performed so well that it was decided to rebuild additional cars for one/two man operation. During October and November, 1931, cars 1293-1327 were so rebuilt, all of them being from the latest front exit cars rebuilt during 1928.







Above left: Newly rebuilt Class I-8 car 1274 eastbound on Como Ave., St. Paul, at the Fairgrounds. (TCRT)

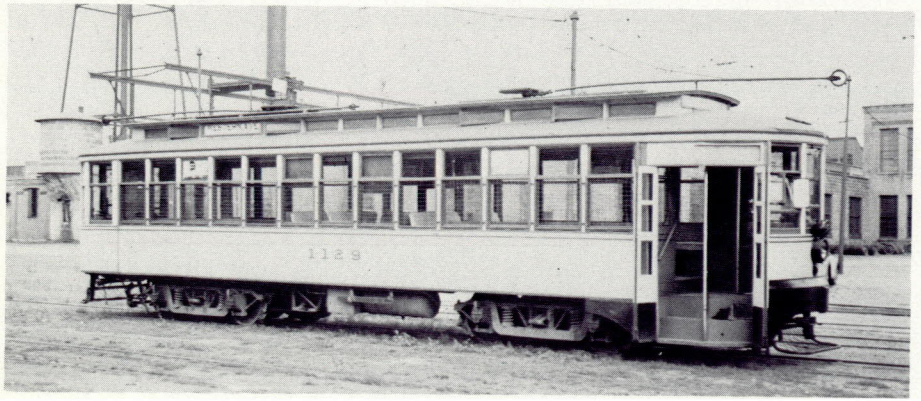
Above right: Cars 2000-2001 appeared this way after final rebuilding. (TCRT)

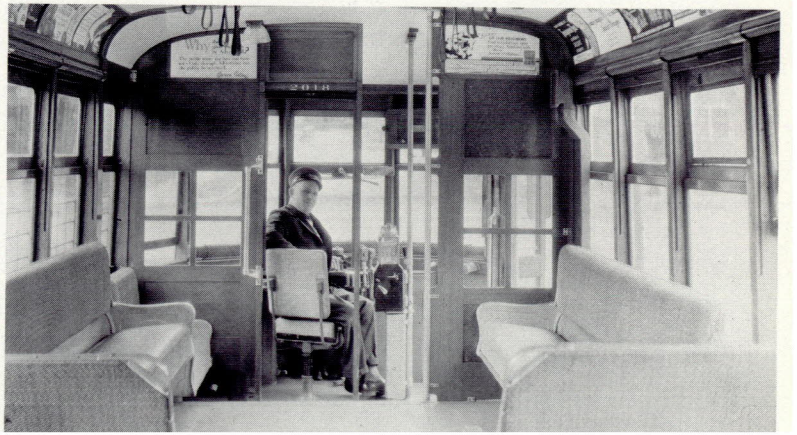
Center left: Car 1230 rebuilt for double end operation. (Joe Hutchinson collection)

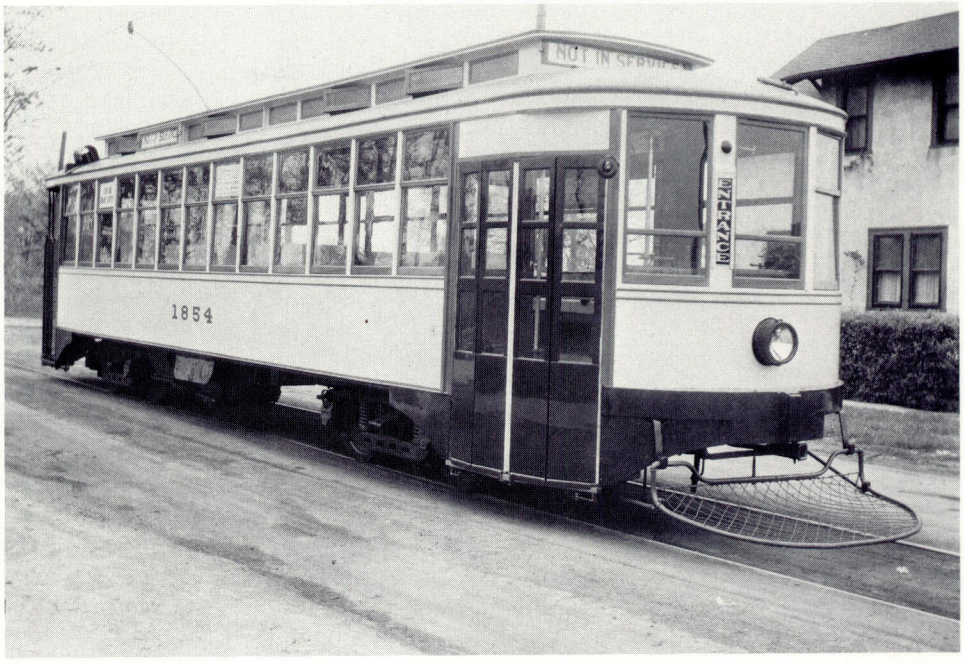
Center right: Cars 2002-2003 appeared this way after final rebuilding. (Robert Schumacher)

Below left: Car 1129 rebuilt for double end operation. (Robert Schumacher)

Below right: Interior of 2018 showing partitions installed on front platform required for exclusive one-man operation. (TCRT)







Right: 1854, the first car rebuilt for one/two man operation, retained the rear folding gates.

Below: 1328, the second car rebuilt for one/two man operation.

Both photographs were taken on the wye at Hoyt and Hamline Avenues, St. Paul, north end of the "Snelling Ave." line. (TCRT)

Two cars were rebuilt for double end operation during 1932 which were the only two TCRT-built standard cars that were "true" double end cars. That is, doors were on diagonally opposite platforms; from the standpoint of the original design, on the "gate side" of the front platform and the "pole side" of the rear platform.

Car 1129 was rebuilt during August, 1932, with two pair of wide folding doors and steps on diagonally opposite platforms. Measurements were: length over-all 45'9", with the body 33'9" and each platform 6'0" long; width 8'6½". Equipment consisted of Twin City #5 trucks, four G.E. 70 motors, 15:71 gear ratio, two K-28 controllers and weight 49,000 lbs. Intended for the "Western Ave." line, St. Paul, it was used instead mostly on the "Merriam Park" line, St. Paul.

Car 3 was rebuilt during September, 1932, with two pair of narrow folding doors and steps on diagonally opposite platforms. Equipment was the same except for two rebuilt K-28 controllers and weight 27,400 lbs. This car was intended for the "Merriam Park" line but instead was used on the "Western Ave." line.

Double end car 1230 was transferred from the "Deephaven" line when it was abandoned in 1932 to the "Fort Snelling Stub" line.

Snow Plow 38 had the double shear plow replaced with a single shear plow during 1932 after abandonment of the "Stillwater" line.

It was decided to continue rebuilding additional cars for one/two man operation. The highest numbered cars were to be rebuilt first, working in descending numerical order, but only as the cars were due for scheduled rehabilitation. This procedure was generally followed throughout the entire rebuilding program which ended in 1937.

Cars rebuilt for one/two man operation April through July, 1932: 1669, 1675, 1700, 1702, 1705, 1709-1711, 1713, 1715-1719, 1721-1723, 1726, 1727, 1729-1731, 1733-1739, 1741, 1743, 1746, 1751, 1752, 1756, 1757, 1760-1772, 1774, 1778-1782, 1786, 1788, 1789, 1791-1794, 1796-1798, 1800, 1802, 1803, 1805-1807, 1811-1813, 1816-1821, 1828, 1830, 1832-1834, 1836, 1837, 1839-1848, 1850, 1851, and 1853.

Cars rebuilt for one/two man operation on the "Jackson St." line in St. Paul, September, 1932: 1124-1128 and 1131.

Cars rebuilt for one/two man operation, March through June and August through September, 1933: 1538, 1540, 1541, 1543, 1544, 1548, 1551, 1552, 1556, 1559, 1560, 1565-1567, 1569-1572, 1574, 1575, 1577-1583, 1587, 1589, 1591, 1593, 1594, 1596-1598, 1654-1668, 1670-1674, 1676-1699, 1701, 1703, 1704, 1706-1708, 1712, 1714, 1720, 1724, 1725, 1728, 1732, 1740, 1742, 1744, 1745, 1747-1750, 1753-1755, 1758, 1759, 1773, 1775-1777, 1783-1785, 1787, 1790, 1795, 1799, 1801, 1804, 1808-1810, 1814, 1815, 1822-1827, 1829, 1831, 1835, 1838, 1849 and 1852.

Cars rebuilt for one/two man operation, March through July 1934: 1465-1467, 1469-1470, 1475, 1479-1480, 1482, 1488, 1494-1496, 1498, 1499, 1502, 1506-1508, 1512, 1515, 1517-1522, 1524, 1527-1531, 1533, 1535, 1536, 1539, 1545, 1546, 1549, 1550, 1553, 1554, 1557, 1558, 1564, 1568, 1573, 1576, 1584-1586, 1588, 1590, 1595, 1599-1600, 1602-1603, 1605, 1607, 1609, 1611-1616, 1619-1621, and 1625-1653.

Cars rebuilt for one/two man operation, June through December, 1935: 1219-1229, 1233, 1235-1253, 1382, 1384-1398, 1402, 1408, 1415, 1417, 1420, 1424, 1425, 1430, 1433, 1437, 1440, 1441, 1446, 1448-1451, 1454, 1462, 1464, 1468, 1473, 1485, 1489, 1492, 1497, 1501, 1503-1505, 1509-1511, 1513, 1523, 1525, 1526, 1532, 1534, 1537, 1561, 1562, 1592, 1601, 1604, 1606, 1608, 1610, 1617, 1618, and 1622-1624.

During October, 1936, car 1134 was rebuilt to Supply Car 95 and equipped with the jib hoist and other fixtures from Supply Car 2. Equipment consisted of Baldwin #1 trucks, four G.E. 70 motors, K-28 controller and weight 46,700 lbs.

Also in 1936, car 1136 was removed from active service and retained for use as the Fairgrounds office car; no physical changes of any kind were made to the car.

It was intended to rebuild 50 cars for one/two man operation during 1936 but delays in delivery of second-hand motors and controllers caused only 30 cars to be completed in 1936. Cars rebuilt for one/two man operation during November, 1936: 1186-1201, 1203, 1205-1211 and 1213-1218. These cars required so much rebuilding that when finished they were practically new and the weight was greatly reduced.

The other 20 cars were completed during 1937. Cars rebuilt for one/two man operation, March, 1937: 1166-1185. These old cars also required so much rebuilding that when finished they were practically new and the weight was greatly reduced; for example 1168 weighed 49,000 lbs. before rebuilding and 44,651 lbs. after.

Cars 1146-1149 were rebuilt with narrow front exit folding doors and steps and re-equipped with Twin City #6 trucks, four G.E. 216 motors and K-43-F2 controller for continued use on the "Inter-Campus" line. 1148 and 1149 were completed in January, 1938, 1146 in March, 1938, and 1147 in April, 1938.

Car 1261 was rebuilt during September, 1938, into Rail Grinder 96, retaining its Baldwin #4 trucks, four G.E. 73 motors and Type M control with C-6 master controller, the rail grinding machinery increasing the weight to 67,600 lbs.

Car 4 was rebuilt for double end operation during November, 1939, by the addition of a second trolley base and pole, controller, brake valve and headlight, and all longitudinal seats. No changes were made to the body. This car was to serve as a spare for 1230 on the "Ft. Snelling Stub" line.

The Sweeper assemblies were removed from Snow Plow-Sweepers 23, 24, and 29-32 during 1942 and they were converted to conventional single end Snow Plows.

Because of an equipment shortage brought about by increased traffic due to wartime conditions five additional cars were rebuilt for one/two man operation during May, 1942: 1487, 1490, 1491, 1500 and 1516; all had the wood sides and ends replaced with steel plate.

Measurements on all cars rebuilt for one/two man operation are summarized following. 81 cars: 1166-1201, 1203, 1205-1211, 1213-1229, 1233, and 1235-1253: length over-all 46'1⅛", body 33'6⅝", each platform 6'3¼"; and width 9'2½".

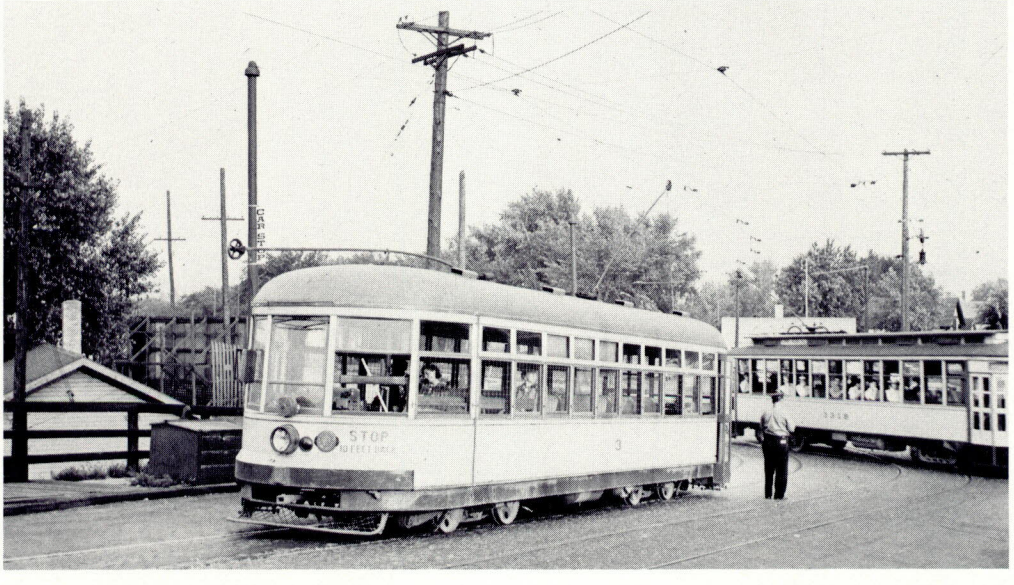
36 cars: 1293-1328: length over-all 46' 0", body 33' 6⅝", front platform 6' 2¼", rear platform 6' 3⅛"; and width 9' 2½".

10 cars: 1465-1470, 1473, 1475, and 1479-1480: length over-all 46'8", body 33'7¾", front platform 6'5¼", rear platform 6'7"; and width 9'1".

400 cars: 1382, 1384-1398, 1402, 1408, 1415, 1417, 1420, 1424, 1425, 1430, 1433, 1437, 1440, 1441, 1446, 1448-1451, 1454, 1462, 1464, 1482, 1485, 1487-1492, 1494-1513, 1515-1541, 1543-1546, 1548-1554, 1556-1562, 1564-1854: length over-all 46'1⅛", body 33'6⅝", each platform 6'3¼", and width 9'1".

Shifter cars 26 and 28 were completely rebuilt during March, 1943, (7'5" wide) equipped with one Peckham 7B truck, two G.E. 67 motors, one Westinghouse K-36-J controller, and weighed 17,500 lbs.

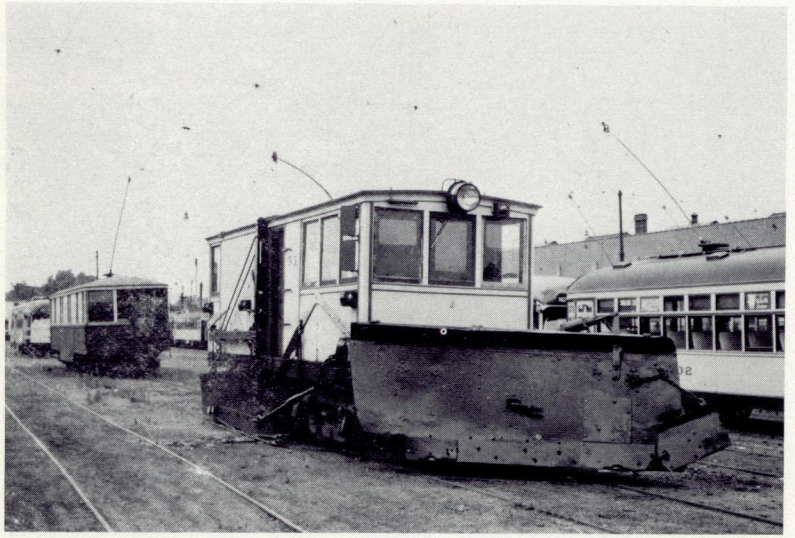
Car 1349 was rebuilt to Supply Car 97 during July, 1947, and re-equipped with Twin City #6 trucks, four G.E. 216 motors, K-37 controller with LB2 device, and weighed 48,000 lbs. The field shunt was installed inside the car. (The car was rehabilitated and repainted in 1952.) The schedule usually followed was: Monday = Lake St.

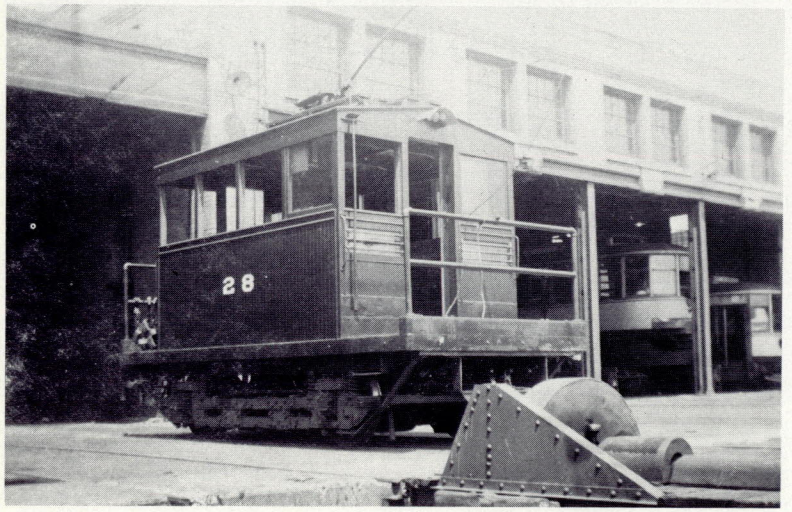


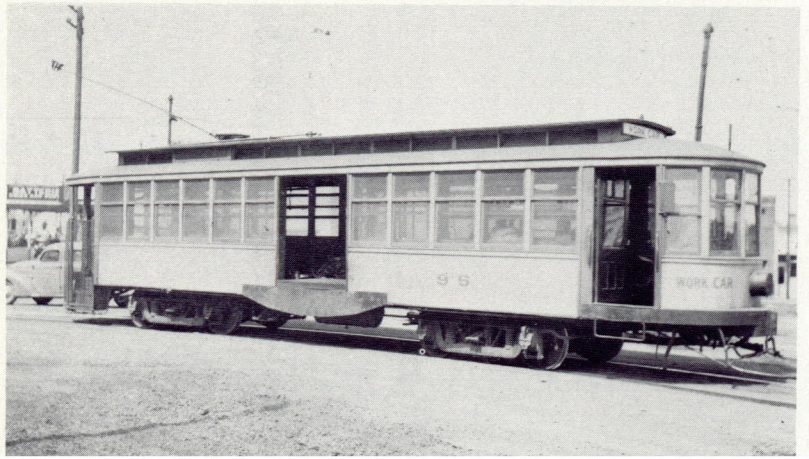
Above: Newly rebuilt one/two man car 1124 on the transfer table at the Snelling Shops, returned for repairs to damage sustained in an accident. (TCRT)

Center: Rebuilt double end car 3 operating on the "Western Ave." line, St. Paul, at Western and Como Avenues, August, 1941. (Joe Hutchinson collection)

Below: Rebuilt double end car 4 at the south end of the "Fort Snelling Stub" line. (Joe Hutchinson collection)



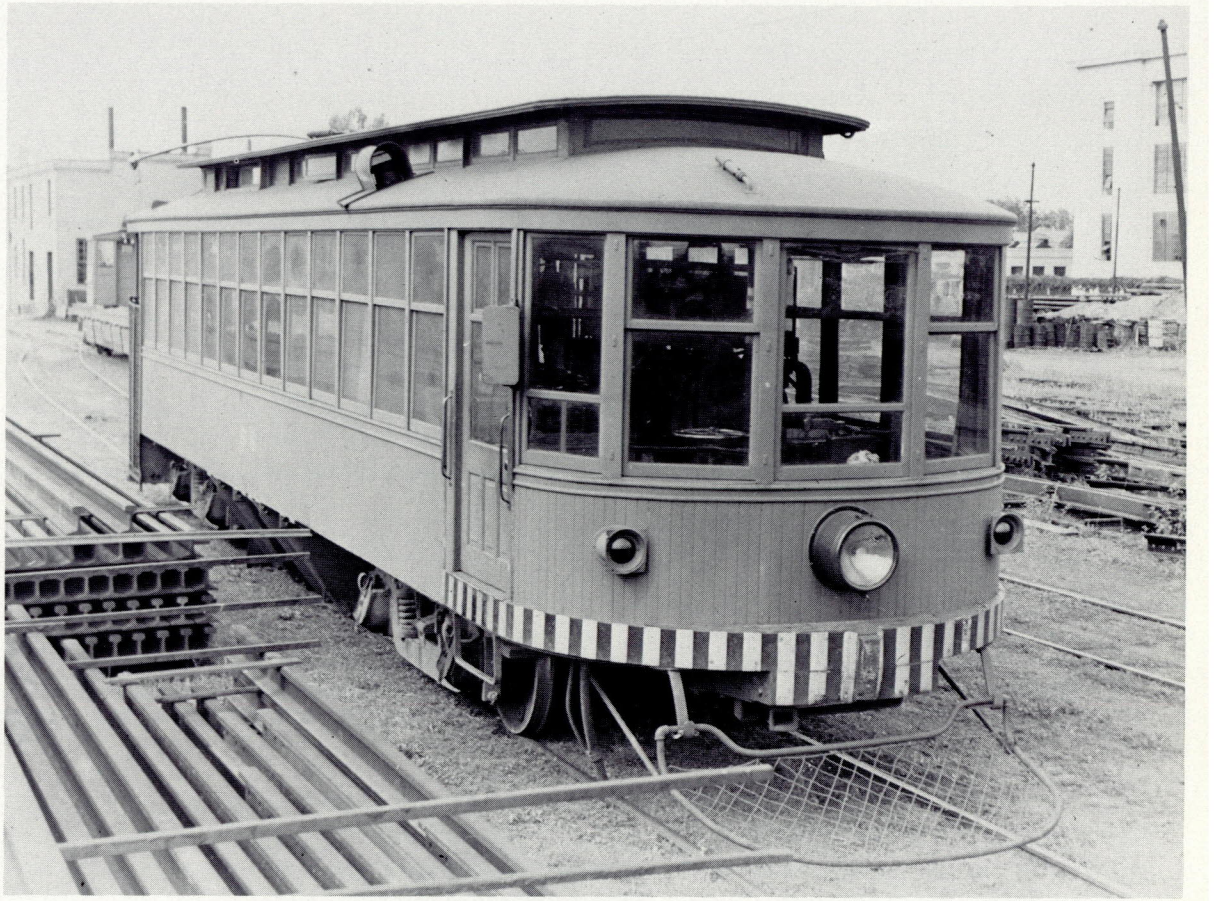




Above: Snow Plow 31 after the sweeper assembly had been removed. (Robert Schumacher)

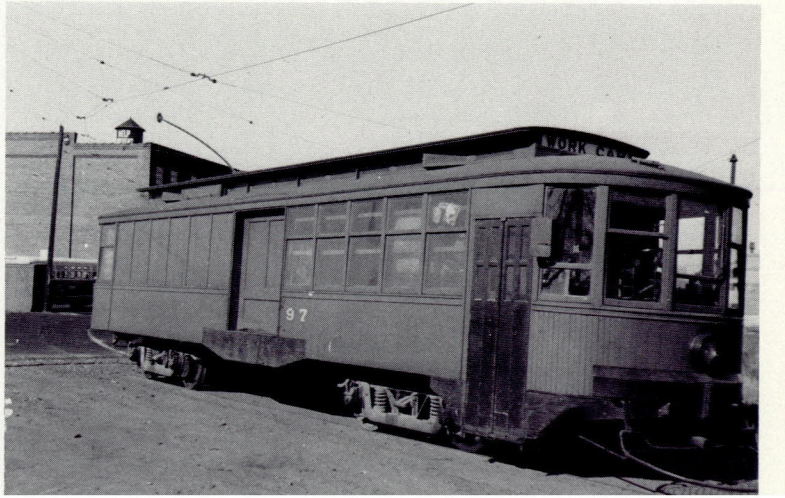
Center: Shifter car 28 as rebuilt in 1943. (Russell L. Olson)

Below: Supply Car 95 (ex 1134), later repainted box car red with white numbers. (Russell Olson collection)



Above: Rail Grinder 96 (ex 1261). (Byron D. Olsen)

Below: Supply Car 97 (ex 1349). (William J. Olsen)



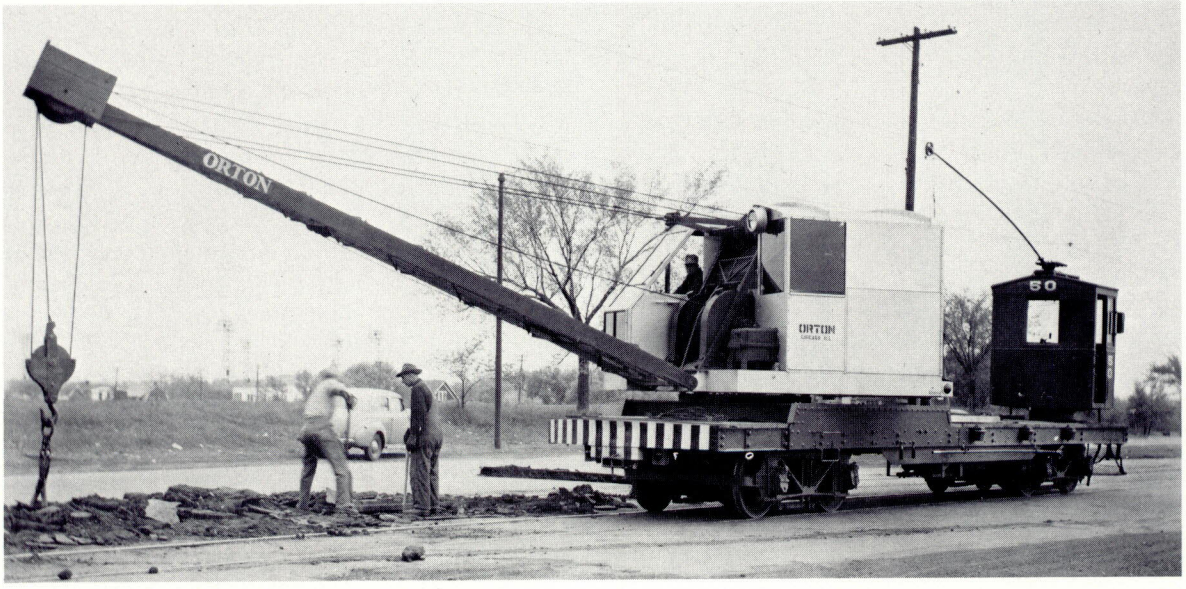
Station, Tuesday = Nicollet Station and Snelling Station, Wednesday = North Side Station, Thursday = East Side Station, and Friday = Duluth Ave. Station.

Crane Car 50 was extensively rebuilt receiving a new cab in August, 1947, and a new Orton crane in March, 1948. The equipment consisted of Twin City #7 Work Car trucks, four G.E. 216 motors, K-35 controller and weight 77,100 lbs. The Orton crane had one 30 h.p. motor providing a capacity of 20,000 lbs. at 12' radius or 7,000 lbs. at 25' radius.

In January, 1952, the rear cab from Wrecker 48 was removed, and in June, 1952, the sand cabs were removed from Sand Cars 13 and 16, thus converting all three cars to conventional Work Cars.

Right: Front view of Crane Car 50 as rebuilt. (Robert Schumacher)

Below: Rebuilt Crane Car 50 removing rail from Rondo Ave., St. Paul. (TCRT)



Miscellaneous Details

Seating Arrangements

Rebuilt front exit cars 1920-1924: three rows of double cross seats at the front of the car were removed and replaced with longitudinal benches seating five persons each.

Rebuilt front exit cars 1928 (1254, 1266-1328): seven rows of double cross seats at the center of the car with longitudinal benches at front and rear. All other 526 front exit cars then had their seating arrangements changed to correspond to the 1928 pattern.

Trailers: all longitudinal benches plus a circular bench around the front platform, seating a total of 57 persons. During 1929 and 1930 the ten trailers (200-208 and 210) intended to be kept in permanent train use were equipped with seven rows of double cross seats arranged similarly to the 1928 front exit car pattern.

Double end cars: 3 and 1129 had reversible seats; 4 had longitudinal benches; and 1230 had the regular seating arrangement (1928 front exit pattern) but non-reversible seats.

Heaters

TCRT-manufactured hot air heaters were installed on all cars rebuilt with front exit doors during 1920-1924. They were located under the carfloor at the center of the car on the "gate" side. Ductwork ran along both sides of the interior terminating in upright vents behind the first longitudinal seat on each side. Stovepipe and smokejack were on the "gate side" at the rear of the car. Extra coal was carried in a hopper beside the heater underneath the car. Fires were usually started around November 1st and kept burning constantly all winter until early April. These

heaters were retained, or newly installed, on all cars rebuilt for one/two man operation which were not electrically heated. In addition the resistors were placed inside a specially constructed cabinet located on the "pole side" of the front platform.

Electric Heaters: Trailers 200-225 were equipped exclusively with Chromolox strip heaters. Cars 2000-2001 were converted to electric heaters and resistor heating. Car 1613 was converted sometime during 1920-1924; the resistors were placed in the hot air heater and the heat conveyed along the left side of the car. Cars 1254, 1266-1328 when rebuilt with front exit doors in 1928 were fitted as follows: the resistors were enclosed beneath the car and the heat piped along the "gate side". Electric strip heaters were placed beneath all the seats on the "pole side". Similarly fitted were 1854 (the first rebuilt one/two man car) in 1931 as were rebuilt cars 1124-1128, 1129 and 1131 in 1932.

In 1931 automatic thermostatic control equipment was purchased and installed for the electric heaters of 100 cars: 2-4, 1254, 1266-1328, 1613, 1854 and 2000-2030. These were discontinued in the late 1930's and removed in 1942.

Oil heat: two cars operating out of Snelling Station were equipped with oil burners in 1946. A valve in the oil line was placed in the front vestibule where the motorman could adjust it without leaving the car's controls.

Bulkhead Doors

The double sliding rear bulkhead doors were retained on the cars rebuilt with front exit doors. The single sliding front bulkhead doors were removed on cars so rebuilt as the front bulkheads were rebuilt; a single hinged door was located in a partition separating the motorman's cab and front step passage-way.

Both the front and rear bulkheads were rebuilt on cars rebuilt for one/two man operation so that there were no bulkhead doors at all on these cars.

Interior Lighting

Front exit cars had four series of lights: two series of five lights each along each side of the car (individual light for each double seat); one series of five lights: two on each of the side destination signs and one above the front steps; one series of five lights: two on the front destination sign, one above the farebox and two on the rear platform.

One/two man cars rebuilt during 1932 and later years had nine 56-watt lamps inaide; earlier rebuilt cars were changed to conform to this pattern. Later, holophane shade reflectors and shade holders were placed on all these bulbs. These cars had one 56-watt headlight.

Lightweight cars rebuilt during 1932 were equipped with ten 56-watt bulbs: one in the headlight, one in the front destination sign box, seven inside the car and one on the rear platform. Holophane shade reflectors and holders replaced the original ornamental boxes.

In 1937 the standard one/two man car lighting was again changed; 534 cars were changed by 1939. 56-watt lamps were connected in two series of four lights each, alternate lights in opposite series. These two series connected with a 94-watt headlight which dimmed if either series went out. An additional circuit of five 15-watt bulbs was installed: one at the farebox, one in the tail light, and three in the front "Enter Here" sign box. At this time the light shades were all removed.

Exterior Paint Scheme

The front doors on cars rebuilt with front exits were painted Moss Green. The folding doors on cars rebuilt for one/two man operation were Yellow above the side-sill bottom line and Moss Green below.

Twin City Lines emblems placed on certain rehabilitated one/two man cars (with steel-plate sides) and lightweight cars, beginning about 1948, were colored Black, Red, and Gold.

Interior Color Scheme

The interior woodwork on all front exit and one/two man cars was changed to a darker cherry color with natural wood finish in 1930; the first car re-finished was 1495, completed July 19th. The few metal surfaces such as heat ducts, back-up control box, switch box, etc. were painted to resemble wood surfaces.

Ceilings were repainted both White and Ivory after 1935; White eventually became the standard color.

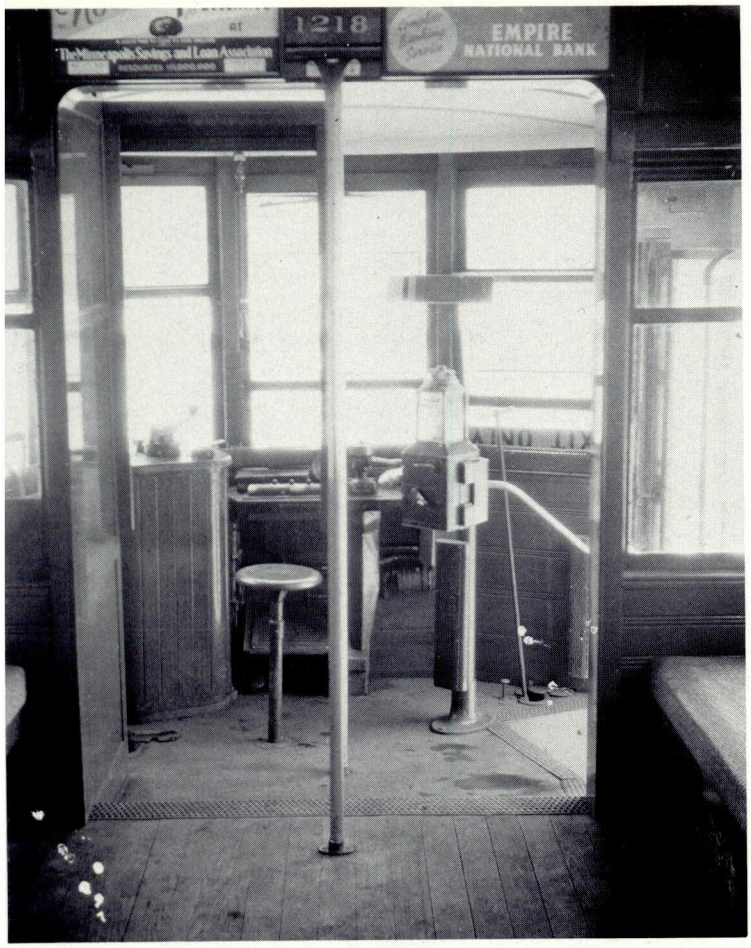
In the late 1940's and early 1950's a few rehabilitated one/two man cars received dark green plastic seat coverings similar to those used on the PCC cars. The interior woodwork was re-painted a light green color matching the PCC cars interior color.

Marker brackets

A company bulletin dated May 9, 1921, stated that all large cars with front exit doors and G.E. 200 type motors assigned to Duluth Ave. Station were to get brackets for signal targets by May 28th for Memorial Day service and summer seasonal service on the Stillwater Division. A total of 58 cars was involved, but the list was not included. Photographs have allowed compilation of a partial listing of these and subsequent cars so equipped: 1501, 1556, 1558, 1560, 1563, 1567-1571, 1579, 1589, 1608, 1609, 1616, 1628, 1635, 1636, 1639, 1641, 1645-1651, 1654, 1656, 1658, 1662, 1664, 1673, 1674, 1678, 1679, 1696, 1719-1721, 1724, 1738, 1743, 1755, 1757, 1759, 1777, 1781-1783, 1786, 1796, 1800, 1801, 1805, 1808, 1809, 1811, 1813, 1815, 1840, 1841, and 1844.

Apparently many of the cars originally equipped with brackets retained them through successive rehabilitations and rebuildings. As late as the 1940's and 1950's the following front exit "gate" cars still had brackets: 1368-1370, 1374, 1375, 1381, 1405, 1409, 1418, 1456, 1463 and 1474.

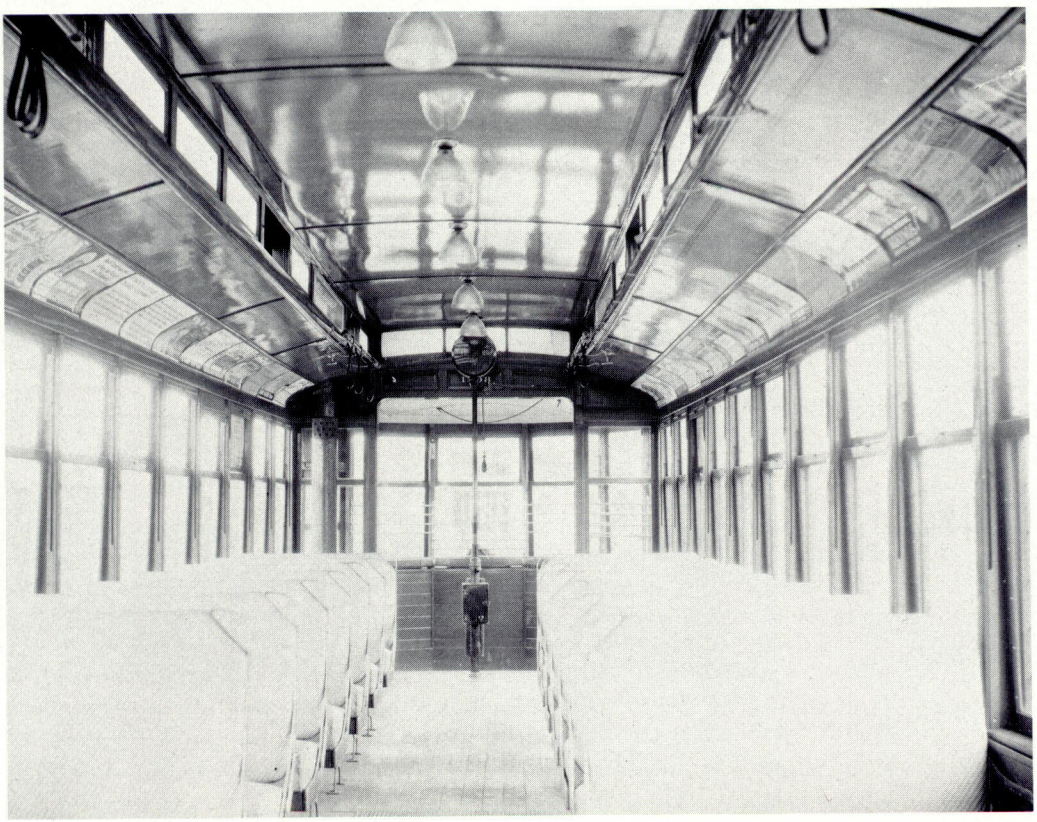
One/two man operated cars used on the Hazel Park-Mahtomedi line had brackets: 1211, 1213-1218, 1233, 1235-1243, 1391, 1393, 1398, 1608, 1610, 1617, 1618, 1622-1624, 1629-1631, 1633-1635, 1809-1815, 1821, 1822, 1825, 1832, and 1840.



Above: Front platform of one/two man car 1218. Air operated sanders were actuated by a foot pedal to the right of the controller; sand bins were located under each front longitudinal bench seat. (TCRT)

Below: Interior view toward the rear of a one/two man car as they appeared prior to 1936. Note ceiling lamp shades, headlining with natural wood finish and striping, brass rear window guards, overhead fare register, and lack of backing-up controls. (TCRT)

Above: Rear interior view of a one/two man car after modifications. Note ceiling lamp shades removed, white painted headlining, wood rear window guards, and rear backing-up control box. (TCRT)



DISPOSITION OF 590 FRONT EXIT "GATE" CARS

Rebuilt for one/two man operation	446 cars
Wrecked	2 cars
Donated to Seashore Electric Ry.	1 car
Rebuilt to Service Car	1 car
Bodies used as Storage Sheds, then sold	3 cars
Body donated	1 car
Dismantled and burned	136 cars
Total	590 cars

The last 6 categories on the above list total 144 cars and constituted all of the front exit "gate" cars in use from 1943 on: 1254, 1266-1292, 1329-1381, 1383, 1399-1401, 1403-1407, 1409-1414, 1416, 1418-1419, 1421-1423, 1426-1429, 1431, 1432, 1434-1436, 1438, 1439, 1442-1445, 1447, 1452, 1453, 1455-1461, 1463, 1471, 1472, 1474, 1476-1478, 1481, 1483, 1484, 1486, 1493, 1514, 1542, 1547, 1555, and 1563.

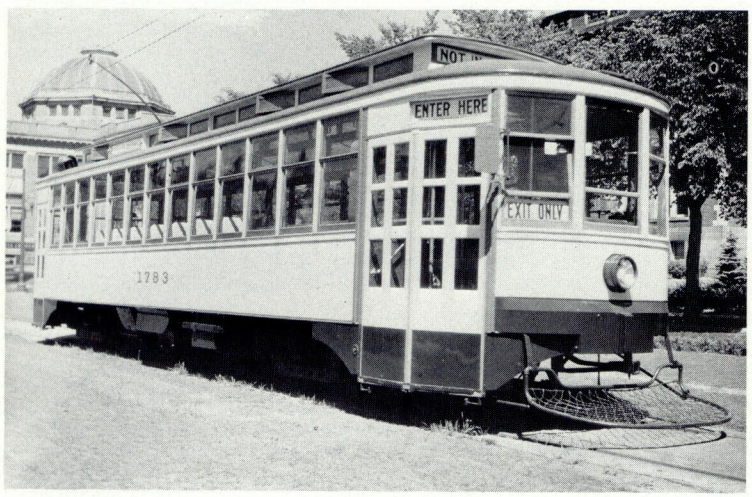
DISPOSITION OF 527 ONE/TWO MAN CARS

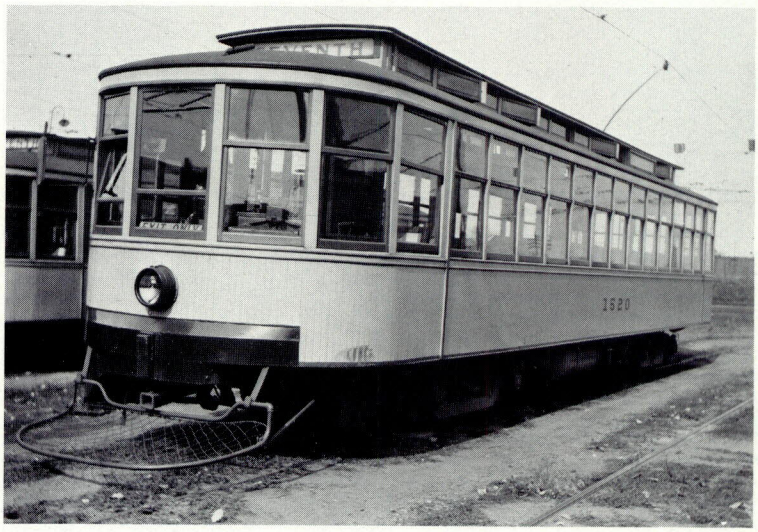
(446 cars were rebuilt from front exit "gate" cars and 81 cars from standard passenger cars.)

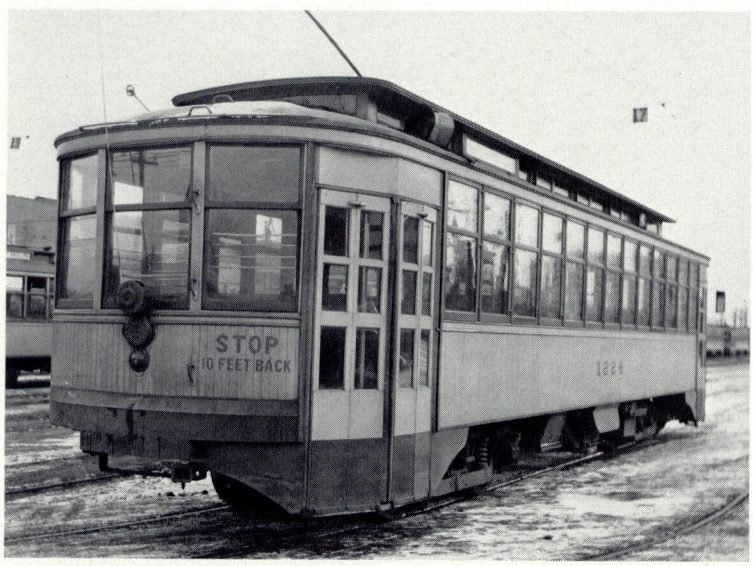
Wrecked or burned	12 cars
Donated to Minn. Railfans Ass'n.	1 car
Body given away	1 car
Bodies sold	239 cars
Dismantled and burned	274 cars
Total	527 cars

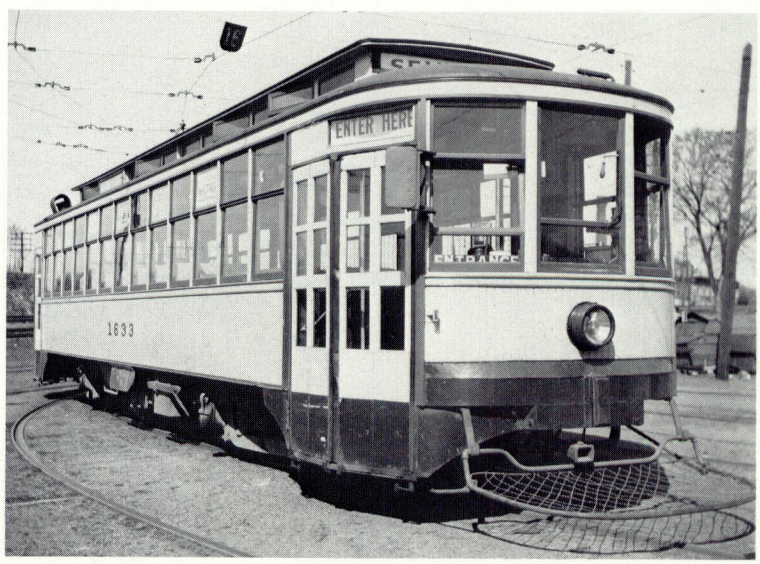
Left: Car 1783 newly rebuilt for one/two man operation, 1933, poses for a company photograph on the main campus of the University of Minnesota. (TCRT)

Right: "Pole side" of one/two man car 1520 at the Duluth Ave. Station, St. Paul. (TCRT)



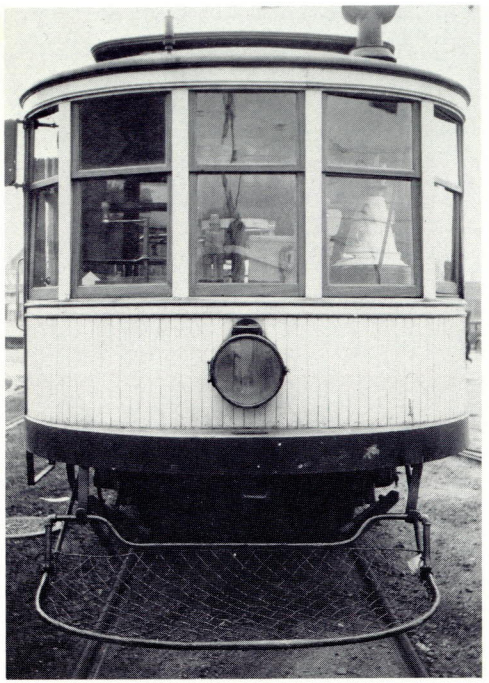






Left: Rear view of the "gate side" of one/two man car 1224. In 1937 rear end reflectors were authorized for 722 cars; these were all installed by October, 1938. The battery operated standby systems were then removed. (TCRT)

Right: Car 1633 equipped with marker brackets for use on the "Hazel Park-Mahtomedi" line photographed at the rear of the Duluth Ave. Station. (TCRT)



A series of head-on views of the various car classes selected to depict the variations in design characteristics. Top row, from left to right: Class D-7, Class F-4, Class I-1, and Class G-6 (High-speed Suburban).

Bottom row, from left to right: Front exit car (with marker brackets), One/two man car, Class P-14 car 2002, and a Lightweight car of the 2006-2030 series.

(All photographs TCRT)

TRUCK IDENTIFICATION

Brill (Old), Brill 01, Brill 02 and Brill 03 were all of 5'8" wheelbase, with no plate and outside hung brakes. Brill (Old) trucks were type 27A-1 acquired in 1899. Brill 01, 02 and 03 were type 27A-2 acquired in 1901, 1902 and 1903 respectively.

Twin City trucks: same as Brill trucks but with 5'0" wheelbase, extra rod across, outside hung motors and inside hung brakes. These trucks were manufactured in the 31st St. Shops during 1900 only for cars built that year.

Brill 04 trucks: 6'0" wheelbase, heavy gusset plate and outside hung brakes. These were type 27E-2 acquired in 1904.

Baldwin #1 trucks: 6'0" wheelbase and outside hung brakes. Used on cars built from November, 1904 through November, 1905.

Baldwin #2 trucks: 6'4" wheelbase and 2" frame. Used on high speed suburban cars built during August, 1905, (1112-1123) and on car 1145 built May, 1906.

Baldwin #3 trucks: there is no company data on these trucks other than an occasional reference in car assignment lists: August, 1911: installed on cars 1193-1195; April, 1912: installed on cars 1256-1259 and 1282-1287. As of December, 1912, they were no longer listed.

Baldwin #4 trucks: 6'0" wheelbase and 2" frame. Used on cars built from May through August, 1906. The University of Minnesota Switch Car was listed as having Twin City #4 trucks; photographs show these to be identical to Baldwin #4 trucks.

Baldwin #5 trucks: 6'0" wheelbase; same as Twin City #5 trucks. Used on cars built from September, 1906, through May, 1908.

Twin City #5 trucks: 6'0" wheelbase; wide split pull rod around wheels. Used on cars built from November, 1908, through September, 1909.

Twin City #6 trucks: 6'0" wheelbase, short nose on equalizer bar, 1½" frame, and outside brake pull rod. Used on cars built from August, 1909, through June, 1911.

Twin City #7 Work Car trucks: 15" channel center with 5" channels around wheels; 5'8" wheelbase. Work Cars 7-16 built 1904-1905, Work Cars 17-19 built 1907, and Locomotive 20 built 1907 were listed as having Twin City Work Car trucks, which had outside hung brakes (14 cars). Apparently the number 7 was assigned when the design was modified slightly to accomodate inside hung brakes. The latter trucks were used on 15 service cars built from 1911 through 1914: Sand Cars 43-45, Work Cars 46-48, Refuse Car 49, Crane Car 50, Work Cars 51-56 and Cupola Car 58. Some Duluth St. Ry. service cars used this truck also.

Twin City #8 trucks: 6'0" wheelbase, long nose on equalizer bar, 1¼" frame, no holes in equalizer bar, and outside brake pull rod. Used on cars built from April, 1912, through February, 1914.

Twin City #8RB trucks: these were #8 trucks equipped with roller bearing journals for cars rebuilt for one/two man operation during 1936 and 1937.

Twin City #9 trucks: 5'6" wheelbase, holes in equalizer bar, and outside brake pull rod. Used on cars built from September, 1914, through June, 1917.

Twin City #9RB trucks: these were #9 trucks with roller bearing journals built new in 1928 for rebuilt cars 1254, 1266-1328.

Twin City #10 trucks: the first lightweight, inside frame, arch bar truck, 4'8" wheelbase, built in April, 1916, for cars 2000-2000A.

Twin City #11 trucks: an improved version of the #10 truck, 4'6" wheelbase, used without motors on Trailers 200-225 rebuilt in 1920, and with motors on cars 2002-2003 built in 1921.

Twin City #12 trucks: the final version of the lightweight, inside frame, arch bar truck, 4'6" wheelbase, equipped with Hyatt roller bearing journals. Later designated Twin City #12RB trucks. Used on cars built from March, 1925, through January, 1928. Twin City #12RB trucks were installed during 1928 on cars 2000-2003 replacing the older #10 and #11 trucks.

33" diameter cast wheels were standard through 1910. 34" diameter rolled steel wheels were standard thereafter. Many older trucks were changed from 1911 onward to the 34" wheels. The lightweight trucks had 26" diameter Davis wheels. (28" wheels were tested on 2023 in late 1937.)

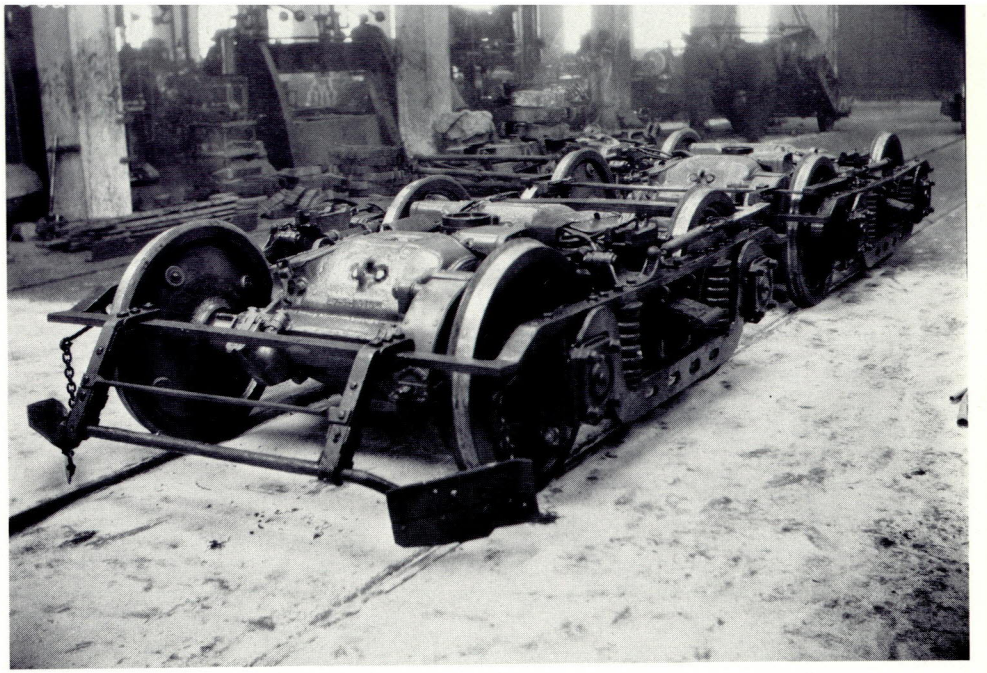
TCRT's practice as of 1906 was to have available two extra trucks with motors for each 25 cars.

The letters assigned to the various truck types for use in TCRT's classification system was as follows:

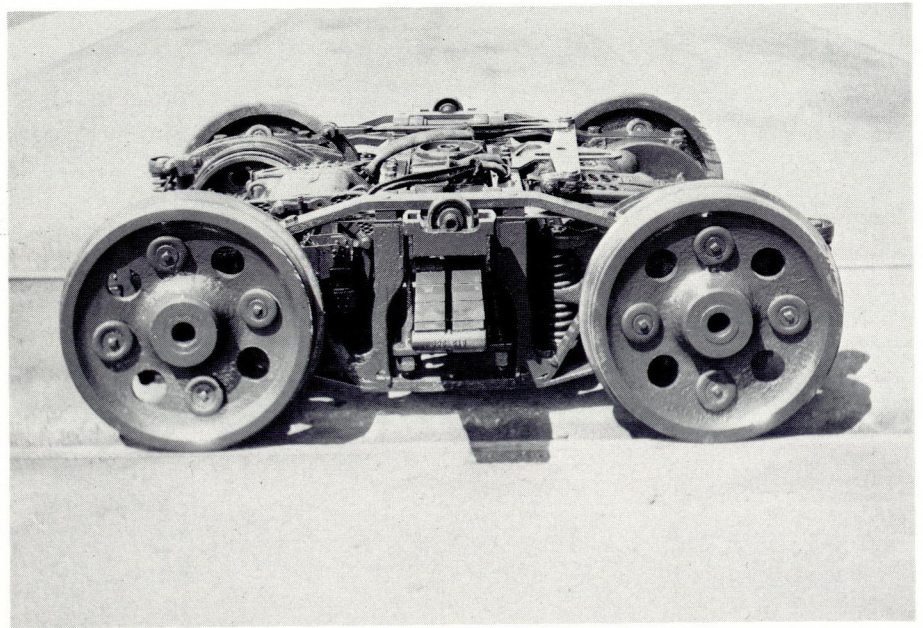
a = Baldwin #1
b = Baldwin #2
c = Twin City #6
d = Baldwin #4
f = Twin City #5 and Baldwin #5
g = Twin City
h = all Brill trucks
m = Bemis
k = Twin City #8
o = Twin City #9
r = Twin City #11
s = Twin City #12

Open Cars 540-547, 549-551 were listed as Class O-x-m and had Bemis trucks until they were scrapped; Open Cars 707-731 were at one point listed as Class O-x-tr; no explanation of the "tr" has been found; when in operation the cars had Bemis trucks. Data sheets also show that: 2002-2003 built in 1921 were listed as Class P-14-m and had Twin City #11 trucks; and 2000-2001 built in 1916 are listed as Class M-9-l and had Twin City #10 trucks.

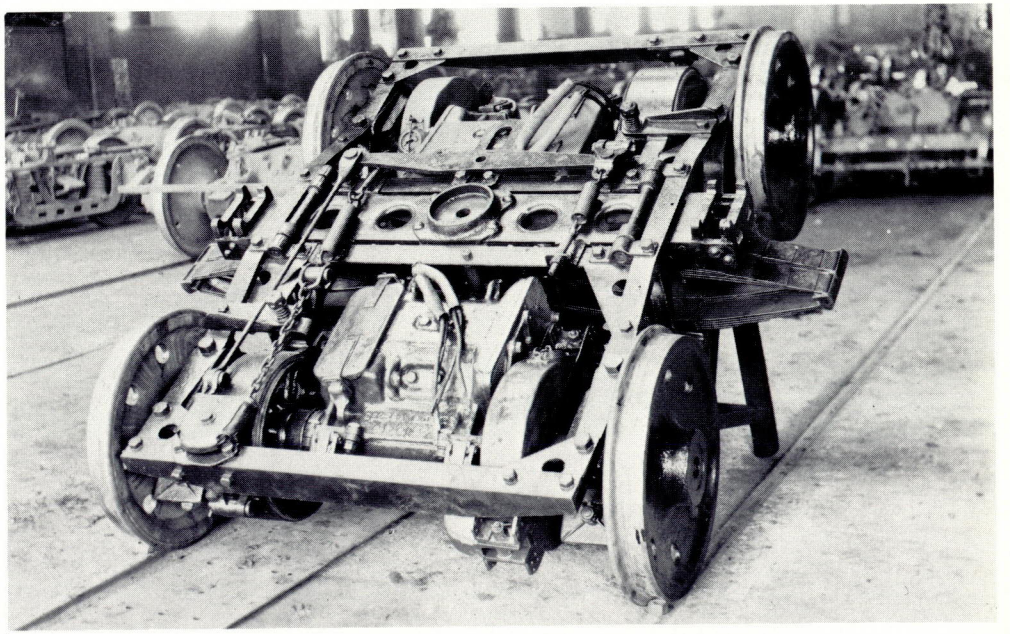
Interior of the machine shop building at the Snelling Shops with Baldwin #5 trucks being worked on. (TCRT)



Twin City #9 RB trucks newly built during 1928. Note the snow scraper attachment on the front truck. (TCRT)



Twin City #12 RB truck. (TCRT)

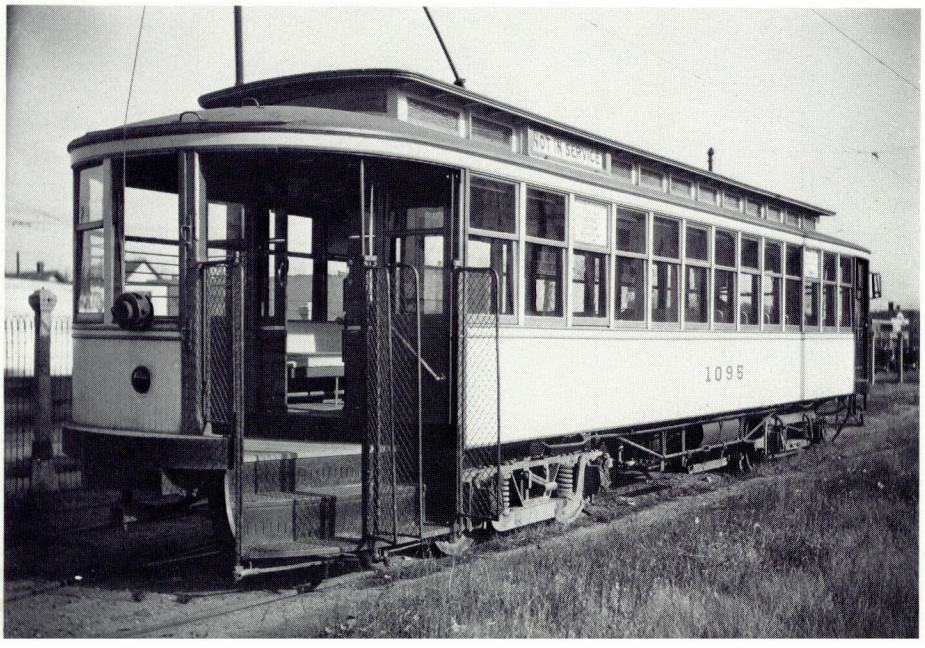


Construction detail of the Twin City #12 RB truck, showing the air-operated band brakes. (TCRT)

3. SHIFTING OF ELECTRICAL AND MECHANICAL EQUIPMENT AMONG CARS

A tabulation of major known changes other than those listed under section 2 on rebuilding programs

Date of Change	Car Numbers	Trucks		Motors	Controller	Weight	Note
Spring, 1899	737-758	Brill (old)	2	G.E. 57	K-11		1
7-17-1899	Private Car	Brill (old)	4	G.E. 57	K-14		2
1901	737-751	Brill (old)	4	W.P. 50	K-6	43800 44462	3
1901	752-761, 832-859	Brill 01	4	G.E. 67	K-6		3
1901	762-772, 786-788, 797	Twin City	4	G.E. 67	K-6	41914 41930	3
1901	Private Car	Brill 01	4	G.E. 57	K-14		
1902	737-751	Brill 02	4	W.P. 50	K-6	45800	
1905	Private Car	Brill 01	4	G.E. 57	C-6 Type M	49000	
1905	905-949	Baldwin #1	4	G.E. 70	K-28	46400	4
1905	752-761	Brill 02	4	G.E. 67	K-6	44400	4
1905	868-899	Brill 02	4	G.E. 67	K-6	40200	4
By 1909	773-774	Twin City	4	G.E. 67	K-6	44400	
By 1909	950	Baldwin #1	4	G.E. 67	K-6		
By 1909	1288-1290	Baldwin #5	4	G.E. 213	K-28-B	49200	
During 1909	1146-1163	Baldwin #4	4	G.E. 73	C-6 Type M	60400	5
During 1909	1164-1195	Baldwin #4	4	G.E. 216	K-37	51000	5
1910	775-778	Twin City	4	G.E. 67	K-6		6
8-15-1911	1193-1195	Baldwin #3	4	G.E. 70	K-28		
By 4-1912	1256-1259, 1282-1287	Baldwin #3	4	G.E. 70	K-28		
By 4-1912	779-785	Twin City	4	G.E. 57	K-37		
1909-1913	752-757, 976-980	Brill 01	4	G.E. 67	K-6		
1909-1913	762-763	Brill 02	4	G.E. 67	K-6		
1909-1913	905-946	Brill 03	4	G.E. 67	K-6	46400	
1909-1913	947-954	Baldwin #1	4	G.E. 67	K-6	500 46700	
1909-1913	955-975, 981-991	Baldwin #1	4	G.E. 70	K-28	45700	
1909-1913	1164-1168, 1193-1197	Baldwin #1	4	G.E. 70	K-28-A	49600	
1909-1913	1143-1144	Baldwin #5	4	G.E. 70	K-28-A	48300	
1909-1913	1189-1192	Baldwin #5	4	G.E. 70	K-28-B		
1909-1913	1286-1288	Baldwin #5	4	G.E. 216	K-37-C		
1909-1913	1289-1290	Baldwin #5	4	G.E. 213	K-37-A		
1909-1913	1370	Twin City #5	4	G.E. 213	K-37-A		
1909-1913	1371-1375	Baldwin #4	4	G.E. 216	K-37		
1909-1913	1376-1379	Twin City #5	4	G.E. 216	K-37		
March, 1914	1255-1259	Baldwin #4	4	G.E. 73	C-6 Type M	58900	7
About 1914	737-751	Twin City	4	W.P. 50	K-6	45800	



Shifting of mechanical equipment really was flexible. Here is car 1095 with a Brill 04 front truck and Baldwin #1 rear truck. (TCRT)

3. SHIFTING OF ELECTRICAL AND MECHANICAL EQUIPMENT AMONG CARS

Date of Change	Car Numbers	Trucks		Motors	Controller	Weight	Note
By 1917	980	Brill 02	4	G.E. 70	K-6		
By 1917	1164-1168	Baldwin #4	4	G.E. 70	K-37		
By 1918	741-742, 748, 750-751	Twin City	4	G.E. 67	K-6		
1921	1600-1625 (as renumbered)	Twin City #9	4	G.E. 200	K-43-F2	42300	8
1928	1003-1041, 1169-1188, 1371-1375	Twin City #5	4	G.E. 70			9
1928	1578-1599, 1626-1667	Twin City #8	4	G.E. 213/216	K-37-C		9
By 3-1930	976-979	Brill 02	4	G.E. 67	K-6		
By 3-1930	992-1006	Baldwin #1	4	G.E. 70	K-28	47300	
By 3-1930	1007-1041	Twin City #8	4	G.E. 70	K-28	47300	
By 3-1930	1164-1192	Twin City #8	4	G.E. 70	K-28	50400	9
By 3-1930	1240-1253	Baldwin #5	4	G.E. 203	K-43-F2	49000	
By 3-1930	1371-1375	Twin City #8	4	G.E. 213	K-37	45600	
By 3-1930	1376-1379	Twin City #5	4	G.E. 213	K-37	48800	
By 3-1930	1480-1481	Twin City #8	4	G.E. 216	K-37	44400	
By 3-1930	1574-1577	Twin City #8	4	G.E. 216	K-43-F2	43700	
By 3-1930	1578-1599, 1626-1667	Twin City #5	4	G.E. 216	K-37-C	42100	
By 3-1930	1668-1684	Twin City #8	4	G.E. 216	K-37	42100	
By 3-1930	1685	Twin City #8	4	G.E. 216	K-43-F2	42100	
1932	1146-1149, 1160, 1265	Baldwin #4	4	G.E. 216	K-37		
1931-1934	1293-1328	Twin City #9RB	4	G.E. 203G	K-43-F2	45560/46460	10
1931-1934	1382, 1384-1398, 1402, 1408	Twin City #5	4	G.E. 213	K-37-C	47100	10
1931-1934	1415, 1417, 1420, 1424, 1425, 1430, 1433, 1437, 1440, 1441, 1446, 1448-1451, 1454, 1462, 1464.	Twin City #6	4	G.E. 216	K-37-C	46700	10
1931-1934	1468, 1473	Twin City #6	4	G.E. 216	K-37-C	47800	10
1931-1934	1465-1467, 1469-1470, 1475, 1479-1480, 1482, 1485, 1487-1492, 1494-1513, 1515-1541, 1543-1546	Twin City #6	4	G.E. 216	K-37-C	47100	10
1931-1934	1548-1554, 1556-1562, 1564-1593, 1603-1644	Twin City #8	4	G.E. 216	K-37-C	46700	10
1931-1934	1594-1602	Twin City #8	4	G.E. 203	K-37-C	46700	10
1931-1934	1659-1668	Twin City #9	4	G.E. 200	K-37	44720	10
1931-1934	1645-1658, 1669-1854	Twin City #9	4	G.E. 200	K-43-F2	44720	10
1935	1219-1229, 1233, 1235-1253	Twin City #5	4	G.E. 213	K-35	48700	11
1936-1937	1166-1201, 1203, 1205-1211, 1213-1218	Twin City #8RB	4	G.E. 203Q	K-35	44651	12
1936-1937	All Rebuilt One/Two Man Cars						13
1942	1487, 1490, 1491, 1500, 1516	Twin City #6	4	G.E. 216	K-37-C	47100	14
1948	3-5, 13, 33, 47, 50, 63, 72	Twin City #6	4	G.E. 216			15
1948	8, 11, 15, 17	Twin City #5	4	G.E. 213			15
1949	7, 9, 10, 14, 16, 18, 19, 46, 48, 49, 51-56, 58, 61, 62, 64-69	Twin City #5 & #6	4	G.E. 213 & 216			16

Notes

1. The original equipment may have come from the double truck, open motor cars being placed in winter storage. Thus by spring, 1899, these cars were necessarily equipped with newly purchased equipment.
2. Air brakes were also installed at this time.
3. The TCRT Annual Report for 1901 stated that "the equipment was increased on forty 44 ft. cars." This referred to 737-772, 786-788 and 797. A 1902 drawing also indicated that 832-859 were involved. Weights on these cars before and after airbrakes were installed were: 762-761 = 41,242 to 41,890/?; 762-772, 786-788 = 41,914 to 41,930/44,400; 797-831 = ?/44,600; 832-859 = 40,370 to 40,442/42,900; 773-785 retained the original equipment for continued use on the Stillwater Division and weighed 46,720 to 47,600.
4. This equipment, geared for 26 m.p.h., was purchased new. The original equipment from these cars was placed on two groups of other cars listed.
5. The G.E. 87 motors on 1146-1195 were returned to G.E. during 1909 as unsatisfactory. These cars then received the equipment listed. 1146-1163 were assigned to the Stillwater Division. It was soon discovered that the heavy bodies and trucks on 1164-1195 caused the G.E. 216 motors to overheat easily; after 1911 these cars were used only on lighter lines or in rush hour service on heavy lines.
6. The G.E. 57 motors and K-14 controllers were removed from these cars as they were replaced on the Stillwater Division by cars 1263-1265.
7. In March, 1914, 1112-1121 were transferred from the Lake Minnetonka Division to the Stillwater Division; the gear ratio was changed to 21:54 (because of the hills) for more power and lower top speed. 1146-1163 were returned to the Lake Minnetonka Division, and 1255-1259 were assigned to the Stillwater Division. The car assignments were:

	Lake Minnetonka Division	**Stillwater Division**
Regular cars	1145-1163	1255-1265
Extra cars	1122-1123	1112-1121

   Snow Plows each winter received the trucks, motors, and controllers of the high-speed suburban cars but with a 17:73 gear ratio. The ten plows built by 1910 (22-24, 29-32, 36-38) were usually equipped with Baldwin #4 trucks, G.E. 73 motors and Type M control from Lake Minnetonka Division 1150 and 1160 series cars. The later eight plows (75-82) usually received the Baldwin #2 trucks, G.E. 73 motors and Type M control from Stillwater Division 1112-1123 series cars. The high-speed suburban cars then received Baldwin #4 trucks, G.E. 216 motors, and K-37 controllers from the 1164-1195 series cars, which in turn received trucks with G.E. 70 motors.
8. The rebuilding program of 1921 involving motor-trailer trains resulted in a decision to equip the motor cars for the trains with the most modern equipment available from existing cars. During the front exit rebuilding programs, 1920-1924, additional switching of equipment took place which are accounted for under the 1928 and by 1930 changes.
9. The Brill 04 and Baldwin #4 trucks from the cars first listed were scrapped. The Twin City #5 trucks and G.E. 70 motors came from 1254, 1266-1328. The G.E. 216 motors came from 1169-1188 and 1371-1375, and the G.E. 213 motors from 1292-1328. By March, 1930, note the equipment on these cars had been changed again. After March, 1930, additional changes were made; for in November, 1935, the following cars which had the equipment listed were again being changed to Twin City #8 trucks with G.E. 70 motors: Twin City #6 trucks with G.E. 216 motors, 1169, 1183, 1188, and 1190-1192; Twin City #8 trucks with G.E. 216 motors, 1173, 1175-1178; Baldwin #4 trucks with G.E. 216 motors, 1174; Twin City #5 trucks with G.E. 213 motors, 1179; Twin City #5 trucks with G.E. 70 motors, 1186.
10. All of these cars were equipped with DB987LB line breakers and LB-2A control device.
11. There are three company memorandums, all with different dates, that provide conflicting information.
    A. 1221, 1236-1253 received spare G.E. 200, G.E. 203, G.E. 213 and G.E. 216 motors. 1222-1229, 1233 and 1235 received G.E. 216 motors from service cars 44-49 and 51-56 in exchange for G.E. 70 motors, with no truck changes being involved.
    B. 1219-1235: Twin City #5 trucks with G.E. 216 motors removed from Sand Cars and Work Cars; 1236-1242: Twin City #9 trucks and G.E. 200 motors from extra equipment on hand; 1243-1245: Twin City #9RB trucks with G.E. 203 motors from extra equipment on hand; 1246-1247: Twin City #5 trucks with G.E. 213 motors from extra equipment on hand; and 1248-1253: Twin City #6 or Twin City #8 trucks with G.E. 216 motors from extra equipment on hand.
    C. As of January, 1936, these rebuilt cars received G.E. 213 and G.E. 216 motors mostly from equipment on hand.
    All of the K-35 controllers installed were acquired second-hand:
    K-35-G: 1223
    K-35-G2: 1221, 1222, 1224, 1225, 1228, 1229, 1233, 1243, and 1246-1248
    K-35-GR: 1237
    K-35-GR2: 1251 and 1253
    K-35-BB: 1226, 1235 and 1240
    K-35-HH: 1238 and 1241
    K-35-JJ: 1239, 1242, 1245, 1249, 1250 and 1252
    K-35-KK: 1227, 1236 and 1244
    All cars were fitted with DB987LB line breaker and LB-2A (or LB-4A?) control device.

12. The trucks were rebuilt Twin City #8 trucks with roller bearings, and the motors and controllers were acquired second hand. There is no detailed controller listing for 1166-1185; the remaining cars received:

    K-35: 1215
    K-35-L: 1187, 1189 and 1199
    K-35-BB: 1186, 1188, 1190-1195, 1197, 1198, 1200, 1201, 1203, 1207, 1209, 1214, 1217 and 1219
    K-35-HH: 1218
    K-35-Q: 1196, 1206, 1208, 1210, 1211 and 1213
    K-35-G2: 1216
    K-35-GR2: 1220
    K-35Q or
    K-35-BB: 1205

    All cars were equipped with DB987LB line breaker and LB-2A (or LB-4A?) control device.

13. Rear end backing up controls were installed during 1936 and 1937. Sensitive door edges on the rear doors were installed beginning in 1937.
14. These cars were also equipped with DB987LB line breakers and LB-2A or LB-4A control devices.
15. A company memorandum dated December 31, 1947, ordered these service cars to be equipped with equipment from scrapped front exit "gate" cars as listed. However 47 and 50 kept their Twin City #7 Work Car trucks until the end of operations, and as of June 1, 1954 car 15 had Twin City #6 trucks.
16. Trucks and motors from 25 scrapped front exit "gate" cars were to be transferred to these 25 service cars during 1949. Not all the transfers were performed that year and probably some were not performed at all; it is known that trucks and motors on 49, 51, and 54 were never so changed.

4. Maintenance and Rehabilitation Programs

A systematic cleaning program was followed for each car, performed at the operating stations. The exterior was washed, floors swept, and interior wiped out daily. Every nine days the floor was scrubbed, and every seventy days the interior was given a thorough cleaning with particular attention given to hidden corners.

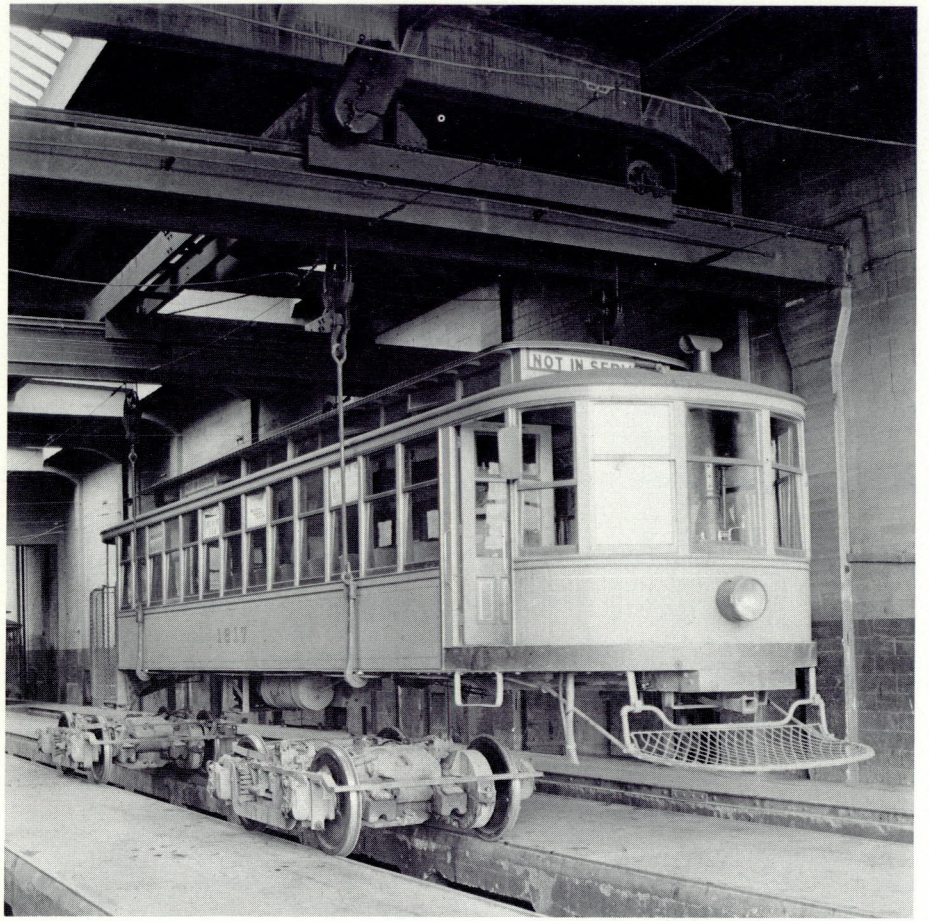
Minor electrical and mechanical repairs were performed at the operating stations. Each car was inspected every other day for wheel and brake defects. Servicing and lubrication were performed at specified intervals on a systematic basis. All car body repairs, most electrical and mechanical repairs, and all major repairs and overhauls were performed at the Snelling shops.

General overhauling, or rehabilitation as TCRT termed it, was performed every eighteen months on cars in heavy service, or every four to five years on cars in light service. When a car arrived at the shops for rehabilitation, it was first placed on an outdoor receiving track for stripping. Here the readily removeable parts such as doors, window sash, seat cushions, and miscellaneous fittings were taken out and sent to the appropriate shop department. Seats were refinished or replaced; new curtains, cushion covers, steps and gates were supplied if those removed were at all worn; bell and battery boxes, push buttons, and other fixtures were replaced; and the window sashes were replaced or renewed by being trimmed true and strips glued on all worn surfaces. The truck electrical and brake connections were loosened so that the trucks could be readily removed.

The car was then run on the transfer table and into the main repair bay in the erecting shop, being spotted on one of two tracks set aside for car rehabilitation. Two special cradles were placed around the car body and hooks from the carriage of the overhead traveling crane attached to the cradle. The body was lifted clear of the trucks which were run out so the body was free to move. A differential gear on the crane consisted of a pair of drums with one set of cables reversed so that as one lifted the other lowered an equal amount. Thus by means of the specially-designed cradles and this differential gear, the car body was rolled over on its side and placed on horses. The cradles were then removed and the body was ready for inspection and repair work.

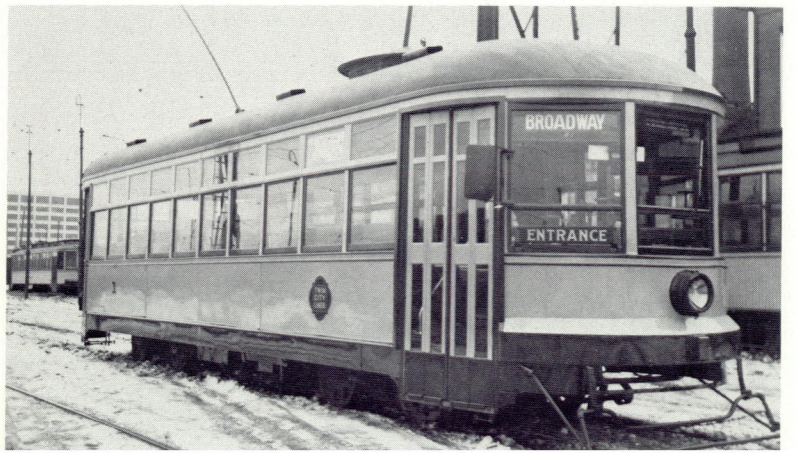
The trucks were sent to the truck shop where the traction motors were removed and gone over in the electric shop. Truck frames and springs, wheels, axles, journals, etc., were rigorously inspected, cleaned, and necessary repairs or replacements made. All parts were then re-painted and re-assembled.

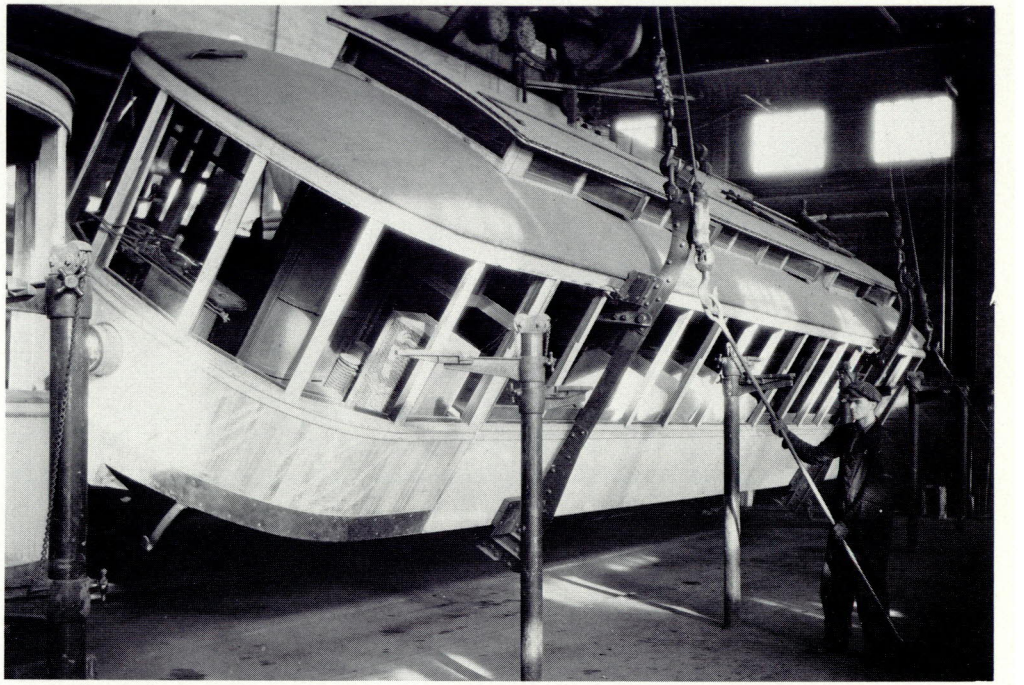
Inspection of the framing was an easy matter with the car body turned on its side, and many defects were discovered which would not be noticed if an inspector had to get into a pit and look upward dependent upon a portable lamp for light. Rotted wood parts and timbers, rusted hangers and air tanks, and rusted metal frame parts were more easily discovered. It was also easier to remove and re-attach equipment fastened beneath the car, and electrical wiring could be done with comparative ease. Underbody and electrical and air brake equipment was removed and sent to the appropriate shop department for inspection, cleaning and repair. While one crew worked on the exterior of the car, another crew worked inside the car from planks laid on the side which was in the lowest position. Painters could clean and varnish the headlining and obtain a better finish in less time and with less fatigue than when the work was done overhead. At the same time attention was given to the roof as it was felt that the workmen were able to do a better job while standing erect and facing the roof than when they had to crawl over it with relatively insecure footing and forced to work out toward the edge. The underside of the car received better penetration of protective paint resulting in longer life of the framing, floor and underbody equipment. The underbody equipment was then re-painted and installed.



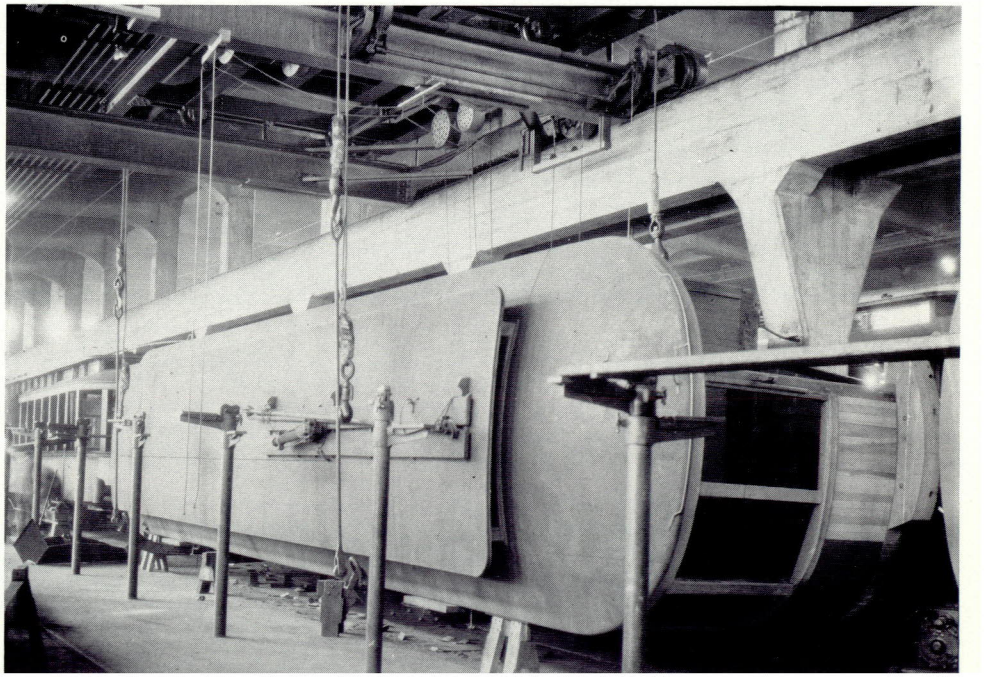
Above: Baldwin #5 trucks being removed from car 1217 in the general repair shop building at the Snelling Shops. (TCRT)

Below: Cars 1 and 2 were repainted in 1948; this photograph illustrates the high quality of the workmanship. (Joe Hutchinson collection)





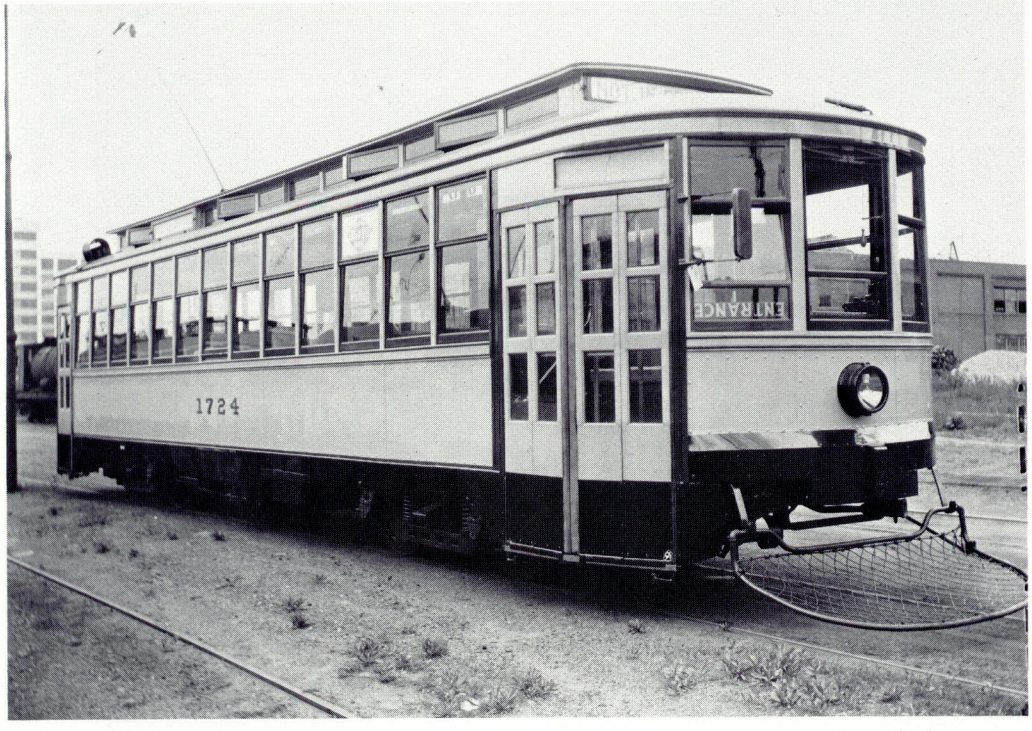
Above and Below: Two views in the erecting shop building showing how cars were rolled over on their sides for rehabilitation. Note the front platform interior detail of the front exit car in the upper photograph. (TCRT)



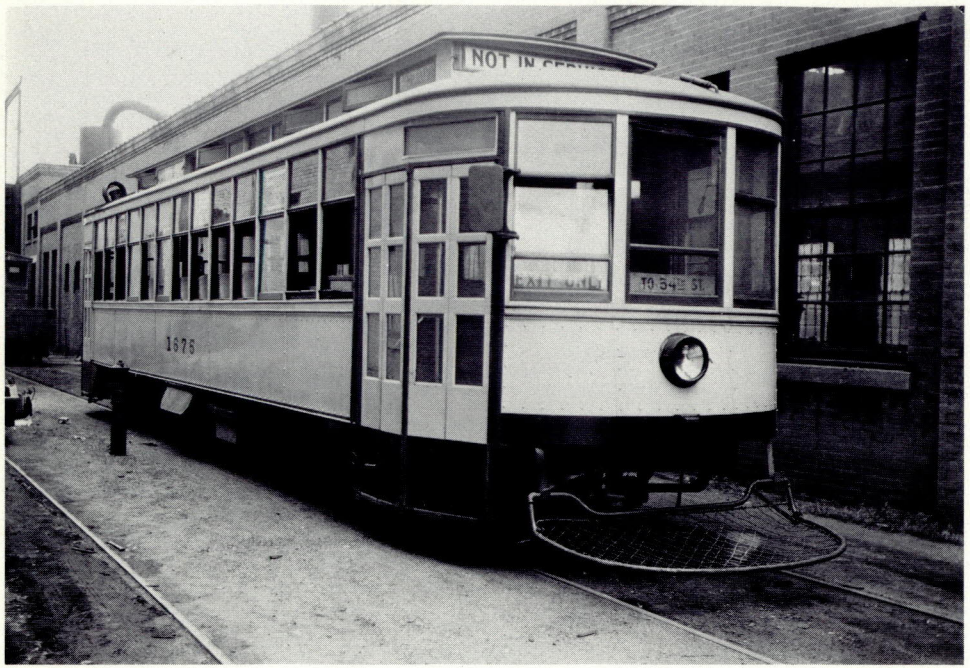
The process of righting the car was similar to that for turning it over, the motions merely being reversed. The righted body was set on the horses and the exterior of the body inspected. All rotted, splintered, or rusted parts and components were repaired or replaced. New mastic floors were placed on the platforms, and the inside floor patched or re-laid. Renovation included a complete re-finishing inside and outside. Paint was burned off irregular surfaces and thoroughly sanded off elsewhere. A new finish was then applied, by hand, which required fourteen days in the paint shop. Then the various parts and fittings first removed were re-installed.

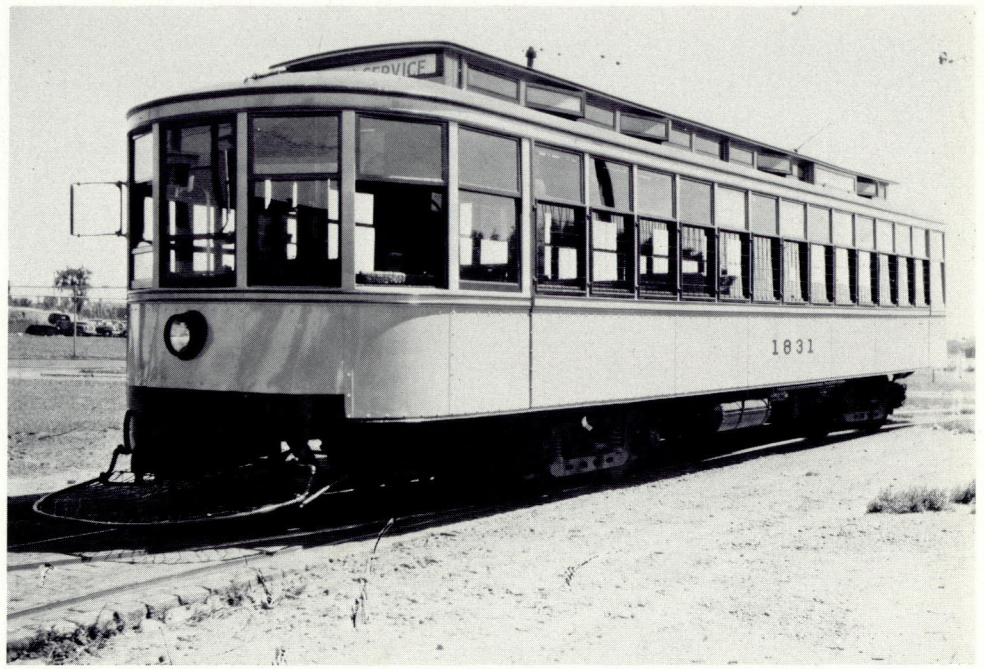
The policy as of 1913 was to keep an average of thirty cars in the main paint shop undergoing a thorough re-finishing while four more were having the finishing touches added in an adjoining shop. By 1938 the policy was to repaint each car every 2 to 2½ years at a rate of 25 cars per month. Rehabilitation was done every five years at a rate of 15 cars per month. 265 men were employed in the shops plus 165 mechanics in the car stations at this time.

During the rehabilitation program from 1938 until 1950, when it was discontinued, the wood side and end sheathing was replaced with 1/16" steel plate on those one/two man cars on which most of the wainscot was found to be rotting. The first two cars so treated were 1724 and 1759, both completed in 1938. 1724 was done first and had straight end panels; these were later changed to sloping panels to provide a "streamlined" appearance. All subsequent cars, including 1759, had the sloping end panels. In 1939 cars 1545, 1570 and 1834 had the seams welded instead of riveted to give a smooth appearance. This made it too difficult to remove sections for maintenance; car 1545 was changed back to riveted seams in 1944, car 1570 in 1949, but 1834 was wrecked before this could be done. A total of at least 287 one/two man cars received steel sheathed sides and ends: 1166, 1176, 1185, 1197, 1200, 1201, 1203, 1207-1211, 1215, 1217-1219, 1221, 1223, 1224, 1227, 1235, 1237, 1243-1245, 1247, 1294, 1302, 1304, 1307, 1311, 1312, 1315, 1317, 1318, 1321, 1325, 1326, 1328, 1385, 1389-1391, 1394, 1396-1398, 1402, 1408, 1415, 1417, 1420, 1425, 1433, 1440, 1441, 1446, 1451, 1462, 1465, 1466, 1468, 1469, 1485, 1487, 1490-1492, 1495-1497, 1499-1501, 1503-1508, 1512, 1515-1519, 1521, 1528, 1529, 1534-1536, 1538-1541, 1543, 1545, 1550, 1552, 1553, 1557, 1559-1562, 1565-1566, 1568-1571, 1573-1575, 1577, 1581-1583, 1586-1590, 1592-1597, 1602-1604, 1606-1608, 1611, 1614, 1616-1622, 1624, 1627, 1628, 1630-1632, 1634, 1635, 1637, 1639, 1640, 1648-1652, 1655-1657, 1659, 1661, 1662, 1665, 1667, 1669, 1671, 1673, 1675, 1677-1680, 1683, 1685-1688, 1691, 1692, 1694, 1695, 1701-1706, 1708-1710, 1712-1716, 1718, 1720-1726, 1728-1730, 1732, 1735-1737, 1739, 1740, 1743-1746, 1748-1753, 1757-1759, 1762-1764, 1766, 1769, 1771, 1772, 1775-1782, 1784, 1785, 1791, 1793, 1795, 1797, 1800, 1802-1804, 1807-1809, 1811, 1813-1819, 1821-1824, 1826, 1827, 1830-1834, 1837, 1838, 1840, 1841, 1845, 1847, 1848, 1851, 1852 and 1854. In addition TCRT record cards indicate 1731 and 1842 received steel sides and ends in 1943 but this has not been verified.



1724 was the first car to receive steel plating on the sides and ends. Note the straight end plates. (TCRT)

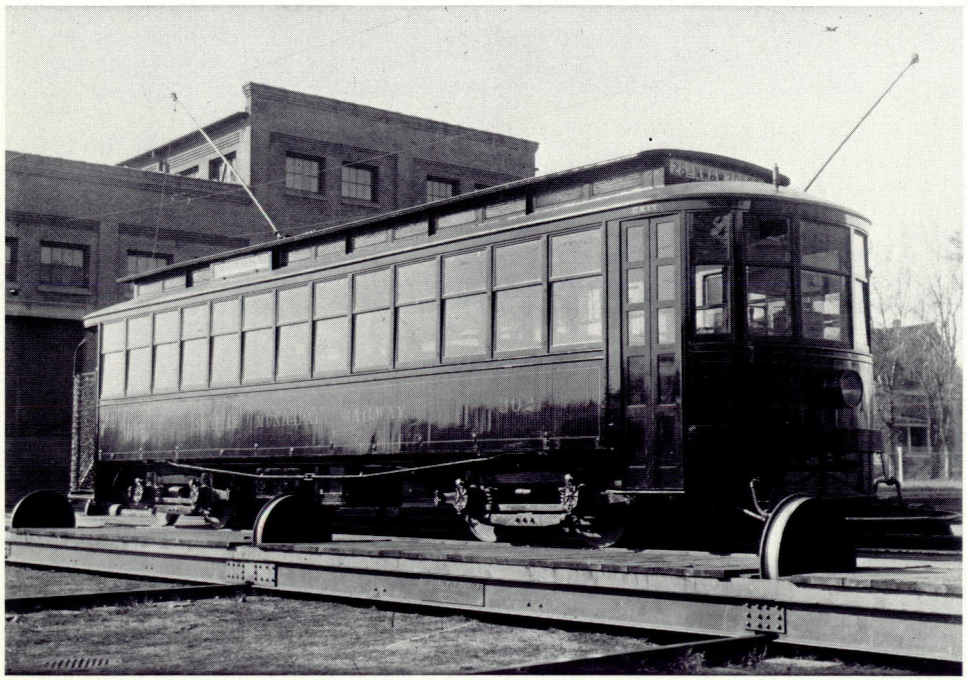




Above left and right: Two views of cars with steel plated sides and ends, showing the effort at "streamlining" by sloping the end plates. The "gate side" of 1675 is shown to the left, and the "pole side" of 1831 to the right. (TCRT)

Left: One of the Class B-5 cars rebuilt with front exit steps and folding doors for the Seattle Municipal Ry. in 1918. Seattle 302 is shown on the transfer table at the Snelling Shops. (TCRT)

Below: Westbound car 1261, right, failed to wait for eastbound car 1263, left, at Owen St. Station siding, Stillwater, and the two collided on "rattlesnake curve" June 1, 1924. (Joe Hutchinson collection)



5. *DISPOSITION OF EQUIPMENT*

1903

Car 859 was wrecked in a collision with a freight train and subsequently scrapped.

1906

Cars 1108-1111 were sold in June to the Duluth St. Ry. becoming their 179-182.

1912

Cars 868-869 were rebuilt to special double end cars for and sold to Duluth St. Ry. as their 255-256 in December, 1912.

1913

Cars 782-785 were sold during May to the Aurora Elgin & Chicago R.R. The A.E. & C. later sold three of them to the Youngstown & Southern Ry.

TCRT #	AE&C #	Y&S #
782	208	16
783	210	18
784	212	—
785	214	20

1916

Car 952 was stripped of motors and controller for use as a Trailer, re-numbered 1590A and coupled to car 1590. In 1921 it was again re-numbered, to 225.

1917

Cars 988-991 and 1672-1673 were leased to Duluth St. Ry. from December, 1917, through November, 1920. 988-991 were DSR 280-283 and 1672-1673 were DSR 279 and 284.

1918

Cars 763, 765, 768-775, 777, 779, 786, 788, 797-799, 803-805, 807, 808, 810-812 were sold to the Seattle Municipal Ry. during October. TCRT rebuilt them with front exit folding doors, repainted and re-numbered them to 300-324. (Seattle later re-numbered them to 800-824; they were scrapped during 1939 and 1940.)

Cars 817-831 were sold in May, and 766-767, 776, 778 and 787 in July, to the Tacoma (Wash.) Municipal Belt Line Ry.

Car 899 was sold to the Cripple Creek Coal Co. of Illinois.

By a letter agreement dated October 19, 1917, car 1855 and Snow Plow 25 were sold to the Minneapolis, Anoka & Cuyuna Range Ry. 1855 was delivered immediately in 1917 but as 25 was to be placed in serviceable condition before delivery, this work was not completed until early 1918 and the car was then delivered.

Cars 1202, 1204, 1212, 1231, 1232, and 1234 were sold to the Duluth St. Ry. and their 289-294.

1920

20 car bodies (no trucks, motors or controllers) were sold to the Winnipeg Electric Co., Winnipeg, Canada, to replace cars lost in a 1919 carhouse fire. July: cars 832, 845, 846, 833-842 and 844; August: cars 848-853. These cars were re-numbered 800-838, even numbers only, in Winnipeg.

Car 1114 was wrecked on April 11th; a broken gear case cover caused the car's derailment at E. 7th St. and Barclay Ave., St. Paul, at 1:15 A.M., and it turned over into a ditch damaging the body so badly the car had to be scrapped.

Car 1258 was destroyed by fire at Duluth Ave. Station.

1925

The Snelling Shops Storage Shed was destroyed by fire on August 17th along with these cars: Horse Car relic (SPCR #1), the Private Car, 612, 624-626, 860-865, 871-874, 877, 879, 947, 951, Work Car A14, Supply Cars 1 (single truck) and 2 (double truck, Northern Car Co., 1892). Work Car 15 was damaged in the fire but as it had a steel underframe it was rebuilt during November, 1925.

1933

Car 1006 was destroyed by fire at Nicollet Station.

Trailer 225 was damaged by fire but was not scrapped until 1935.

1934

Work Car 12 was damaged by fire in January and dismantled in 1936.

The 95 oldest cars were sold for scrap: 764, 780, 781, 800-802, 806, 809, 814-816, 843, 854-858, 866-867, 870, 878, 880-895, 900-946, 948-950, and 953-960. The cars were moved under their own power to Duluth Ave. Station in St. Paul where a carhouse track connected with the C. St. P. M. & O. Ry.; they were then moved by railroad, all equipment complete, to the Paper, Calmenson & Co. yard on E. 7th St. where they were burned and the scrap metal salvaged.

1936

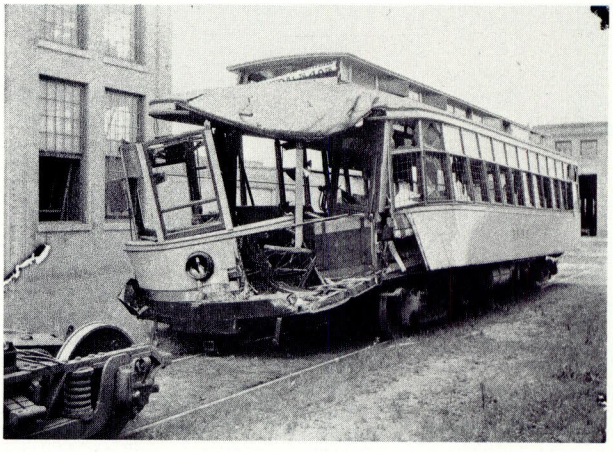
173 obsolete cars, out of service for about five years, were sold for scrap: 896-897, 961-1005, 1007-1107 and trailers 200-224. Paper, Calmenson & Co. scrapped these cars in the identical manner used in 1934.

Dismantled and burned: Supply Car 2 (ex 762) and Baggage Car 34.

Cars 1610 and 1629 were wrecked and burned in a head-on collision on the gauntlet track bridge over the C. St. P. M. & O. Ry. in Hazel Park on the Mahtomedi line. The remains were hauled to the Snelling Shops and dismantled.

1937

Car 1699 was wrecked in a collision with a steam locomotive of the C. M. & St. P. Ry. at 49th St. and Minnehaha Ave., Minneapolis, and was damaged so badly it had to be scrapped.



Left: Remains of 1610 or 1629 at the shops, 1936. (TCRT)
Above: Wreckage of 1699 at the shops, 1937. (TCRT)

1938

33 cars were dismantled and burned: 1112-1113, 1115-1123, 1145, 1150-1163, 1135, 1139, 1255-1256, 1259 and 1264-1265.

1939

22 cars were dismantled and burned: 1124-1128, 1130-1133, 1137-1138, 1140-1144, 1164-1165, 1257, 1260 and 1262-1263.

Flat Trailer 88 was destroyed.

1940

Car 1674 was destroyed by fire in the erecting shop at the Snelling Shops.

Car 1179 was wrecked and burned in a collision with a gasoline tank truck on the N.W. Terminal line in Minneapolis.

1941

Cars 813, 847, 875, 876, 898 and 1146-1149 were dismantled and burned.

1942

Gondola Trailer 90 was scrapped.

1944

Sand Blast Car 35 was dismantled and burned.

1945

Sand Blast Car 70 was dismantled and burned.

Car 1275 was wrecked at 34th St. and the Harriet Right-of-Way in Minneapolis.

1946

Car 1353 was dismantled and burned; it had been damaged in a wreck during 1943 and in storage since then.

1947

Car 1834 was wrecked in a collision with a locomotive at 49th St. and Minnehaha Ave., Minneapolis, and damaged so badly it had to be scrapped.

Car 1449 was wrecked and burned in a collision with a U.S. Mail truck at Selby Ave. and Pascal St. in St. Paul. Supply Car 95 (ex 1134) was dismantled and burned. Car 1129 was dismantled and burned.

With the coming of the PCC cars, the first scrapping of surplus front exit-gate cars began. The following cars were dismantled and burned: 1331, 1334, 1361, 1363, 1365, 1372, 1414, 1428, 1434, 1445, 1447, 1456, 1477, 1481, and 1484.

1948

Car 1330 was dismantled and burned.

1949

The bodies of cars 1354, 1374, and 1476 were made into storage sheds for the Snelling Track Dept. yard.

The following cars were dismantled and burned: 1-3, 1332, 1333, 1336, 1337, 1344, 1352, 1356, 1358-1360, 1371, 1373, 1377-1380, 1399, 1405, 1406, 1411-1413, 1421, 1431, 1432, 1435, 1438, 1442-1444, 1452, 1453, 1455, 1458, 1463, 1471, 1474, 1486, 1493, and 1547.

1950

Car 1793 was destroyed by fire at the Snelling Station.

Cars 2001, 2002 and 2004 were dismantled for parts.

1951

Car 1605 was wrecked in a tornado at 62nd St. and Nicollet Ave., Minneapolis (July) and subsequently scrapped.

Cars 1198 and 1773 were so badly damaged in a collision (one car derailed directly in front of the other which was heading in the opposite direction and ran into the side of the derailed car) on 42nd Ave. So. at 53rd St., Minneapolis, that both were dismantled and burned.

Cars 1329, 1341, 1350, 1364, 1368, 1381, 1400, 1419, 1427, 1542, 1555 and 1563 were dismantled and burned.

1952

Car 1655 was damaged in an accident, then dismantled and burned.

Car 1507 was destroyed by an electrical fire on University Ave., St. Paul.

Car 2011 was badly damaged by an electrical fire on Franklin Ave., Minneapolis, and was scrapped in 1953.

The following car bodies were sold to the Transportation Sales Co.: 1235, 1553, 1597, 1723, 1735, 1749, 1751, 1771 and 1810.

The following cars were dismantled and burned: 4, 1136, 1230, 1247, 1254, 1272-1274, 1276-1292, 1335, 1338-1340, 1342, 1343, 1345-1348, 1351, 1355, 1357, 1362, 1366, 1367, 1369, 1370, 1375, 1376, 1383, 1401, 1403, 1404, 1407-1410, 1416, 1418, 1422, 1423, 1426, 1429, 1436, 1439, 1457, 1459-1461, 1472, 1478, 1483, 1514, 1534, 1612, 1613, 1728, 1731, 1774, 2000, 2003, 2005-2010, 2012-2030; also Wire Car 4, Work Car 16, Shifter Car 27, Rail Grinders 39-40, Work Cars 47-48, Sprinkler Car 59, Electric Shovels 57 and 60, Pavement Plow 71, Shop Trailers 84-87 and 91-93, and Rail Grinder 96 (ex 1261).

1953

Given to New England Electric Railway Historical Society's Seashore Electric Ry.: car 1267.

Body given to Sacred Heart School, Robbinsdale: car 1268.

Bodies sold to D.P. Mikkelson: cars 1208 and 1842.

Body given to Mr. Weisman: car 1780.

Bodies sold to Mr. Weisner: cars 1529, 1541, 1652, 1736, 1737 and 1816.

Bodies sold to Transportation Sales Co.: 1174, 1176, 1197, 1199, 1201, 1203, 1211, 1213, 1222, 1224, 1227, 1239, 1244, 1384, 1388, 1390, 1394, 1396, 1397, 1441, 1454, 1462, 1465, 1466, 1469, 1490, 1496, 1497, 1501, 1504, 1505, 1508, 1516-1519, 1535, 1538, 1540, 1543, 1545, 1550, 1557, 1565, 1566, 1571, 1575, 1578, 1579, 1581, 1582, 1585-1589, 1592, 1595, 1596, 1603, 1620, 1627, 1634, 1648, 1650, 1651, 1653, 1658, 1662, 1663, 1666, 1668, 1673, 1677, 1679, 1684, 1687, 1691, 1713, 1714, 1724, 1730, 1745, 1748, 1750, 1753, 1763, 1766, 1769, 1776, 1777, 1802, 1804, 1806, 1809, 1811, 1813, 1821, 1823, 1832, 1833, 1837, 1840, 1841 and 1850.

Dismantled and burned: 1169, 1171-1173, 1177, 1187-1189, 1191, 1194-1196, 1206, 1217, 1225, 1226, 1228, 1229, 1246, 1248-1253, 1271, 1317, 1318, 1386, 1387, 1391-1393, 1395, 1398, 1417, 1420, 1425, 1430, 1437, 1446, 1448, 1451, 1464, 1467, 1475, 1479, 1480, 1485, 1489, 1491, 1498, 1500, 1502, 1503, 1510, 1520-1524, 1526-1531, 1537, 1548, 1552, 1554, 1562, 1567, 1569, 1572, 1591, 1598, 1600, 1601, 1609, 1611, 1614, 1618, 1622-1624, 1630, 1631, 1633, 1635, 1636, 1638, 1640, 1641, 1643, 1644, 1654, 1657, 1659, 1660, 1664, 1670, 1681, 1683, 1689, 1690, 1693, 1695-1697, 1702-1704, 1709, 1711, 1712, 1717-1719, 1722, 1729, 1734, 1738-1743, 1747, 1754, 1772, 1779-1781, 1783, 1792, 1800, 1805, 1812, 1814, 1815, 1822, 1828, 1830, 1835, 1836, 1839, 1843, and 1847; also Wire Car 5, Sand Car 18, Snow Plows 22-24, 29-32 and 36-38, Work Car 52, Supply Car 61, Snow Plows 80 and 82, and Shop Trailer 89.

1954

Given to Minnesota Railfans' Assn.: car 1300.

Sold complete to Northern States Power Co.: Electric Locomotive 20.

Sold complete to American Iron & Supply Co., Minneapolis: Crane Car 50.

Body sold: Sand Car 45.

Sold to a gravel pit in Wisconsin: Electric Shovel 94.

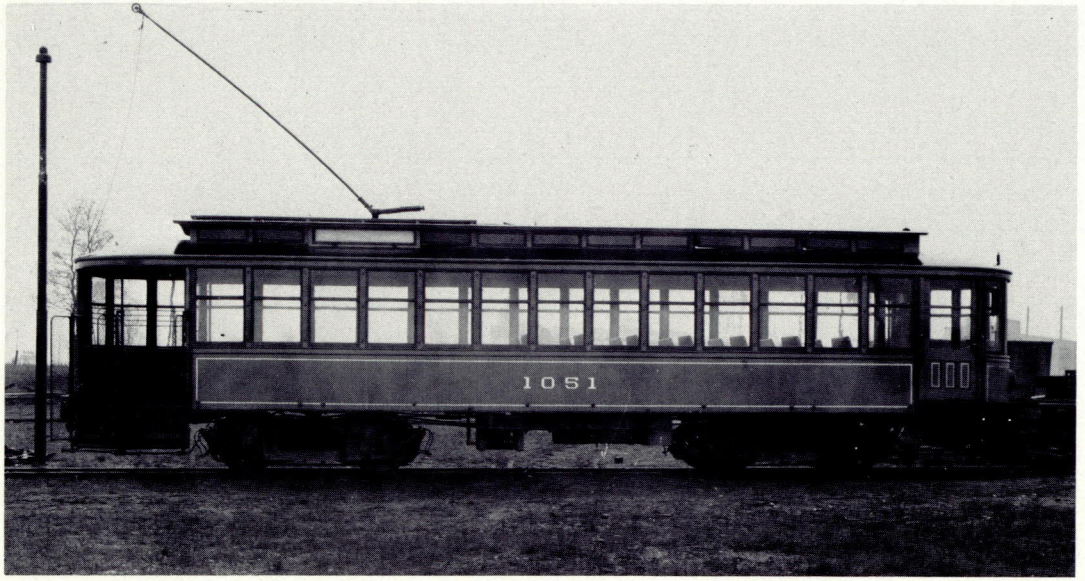
Body sold or given to Gun Club by or for Mr. Larrick: car 1628.

The University of Minnesota Switch Car was moved under its own power to Snelling Shops, then dismantled and burned by TCRT.

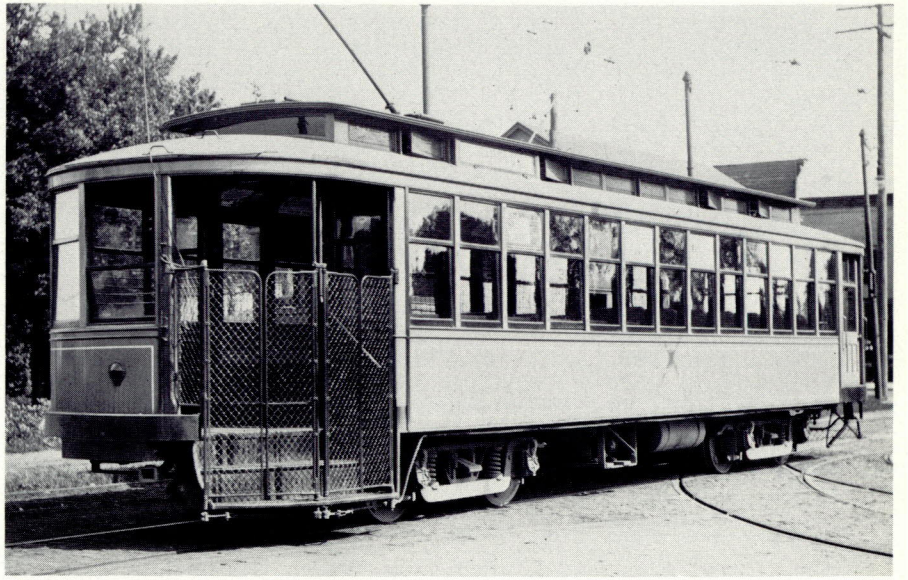
Bodies sold to D.P. Mikkelson: 1200, 1303, 1354 storage shed, 1374 storage shed, 1476 storage shed, 1577, 1615, 1692, 1706, Snow Plows 75-79 and 81, and Supply Car 97 (ex 1349).

Bodies sold to Transportation Sales Co.: 1167, 1168, 1175, 1186, 1209, 1214, 1215, 1218, 1237, 1238, 1241-1243, 1245, 1293, 1295, 1302, 1305, 1308, 1309, 1310, 1314, 1326, 1385, 1402, 1415, 1433, 1440, 1450, 1468, 1470, 1473, 1487, 1492, 1495, 1499, 1506, 1509, 1512, 1513, 1515, 1544, 1551, 1556, 1560, 1561, 1570, 1573, 1574, 1576, 1580, 1583, 1584, 1590, 1593, 1594, 1602, 1604, 1606-1608, 1616, 1626, 1632, 1637, 1639, 1647, 1649, 1661, 1669, 1675, 1676, 1680, 1685, 1688, 1694, 1698, 1701, 1705, 1710, 1715, 1716, 1725, 1726, 1732, 1752, 1755-1759, 1778, 1785, 1791, 1794, 1796, 1798, 1799, 1803, 1808, 1820, 1824, 1826, 1827, 1829, 1831, 1838, 1844, 1852 and 1854.

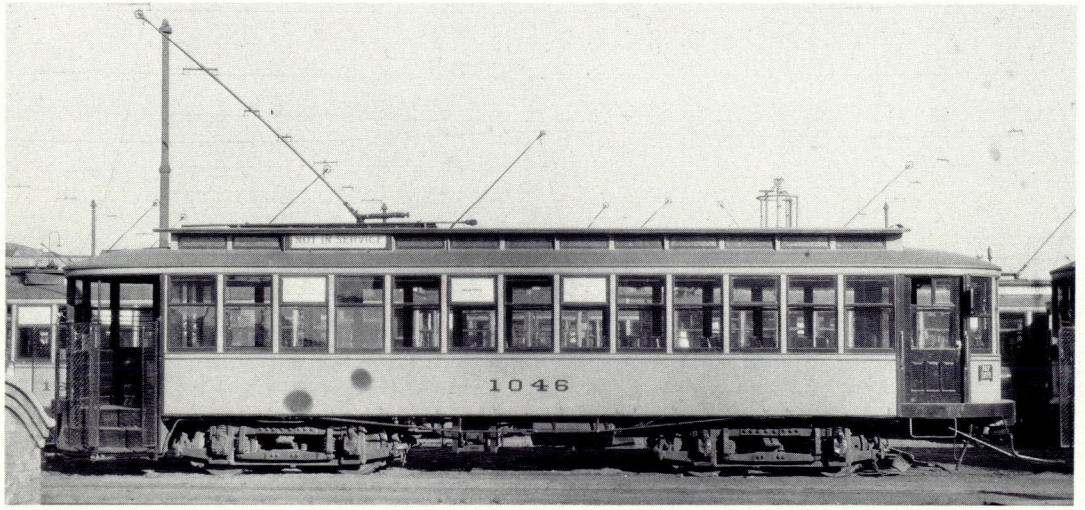
Dismantled and burned: 1166, 1170, 1178, 1180-1185, 1190, 1192, 1193, 1205, 1207, 1210, 1216, 1219-1221, 1223, 1233, 1236, 1240, 1266, 1269, 1270, 1294, 1296-1299, 1301, 1304, 1306, 1307, 1311-1313, 1315, 1316, 1319-1325, 1327, 1328, 1382, 1389, 1424, 1482, 1488, 1494, 1511, 1525, 1532, 1533, 1536, 1539, 1546, 1549, 1558, 1559, 1564, 1568, 1599, 1617, 1619, 1621, 1625, 1642, 1645, 1646, 1656, 1665, 1667, 1671, 1672, 1678, 1682, 1686, 1700, 1707, 1708, 1720, 1721, 1727, 1733, 1744, 1746, 1760-1762, 1764, 1765, 1767, 1768, 1770, 1775, 1782, 1784, 1786-1790, 1795, 1797, 1801, 1807, 1817-1819, 1825, 1845, 1846, 1848, 1849, 1851 and 1853; also Wire Car 3, Work Cars 7-11 and 13-15, Work Cars 17 and 19, Wrecker 21, Shifter Cars 26 and 28, Work Car 33, Sand Cars 43 and 44, Work Cars 46 and 49, Work Cars 51 and 53-56, Supply Car 58, Work Cars 62-69, Wire Car 72, Electric Shovel 73, Yard Crane 74 and Crane Car 83.



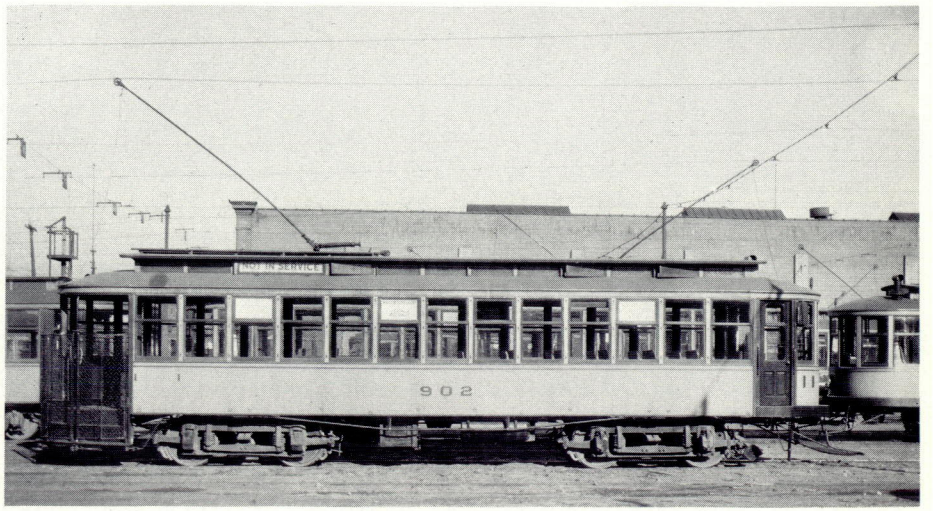
Class E-4 car 1051 as it originally appeared, but with Baldwin #1 trucks. (TCRT).



Class G-6 car 1219 about 1911 at East Side Station; Baldwin #5 trucks. (TCRT)



Class E-4 car 1046 as it appeared in the late 1920's, with Brill 04 (27 E-1) trucks. (TCRT)



Class B-5 car 902, also in the late 1920's, with Brill 02 (27A-2) trucks. (TCRT)

These photographs have been included to illustrate class differences as well as the effect of age and paint scheme modification.

MAIN STEAM STATION RAIL EQUIPMENT

The trackage at the Main Steam Station was powered by third rail to facilitate unloading of railroad cars of coal by crane cars fitted with clamshell buckets. The initial equipment at the station consisted of an electric locomotive (first: Snow Plow 20 modified for such use; second: specially built Electric Locomotive 20), one hopper-bottom gondola trailer (6), with no records whatsoever as to the crane car. Apparently the crane car was not considered rolling stock but as part of the steam station equipment and this practice was followed until the end of streetcar operations as no records have been located on any of the crane cars. The gondola car was replaced at an unknown date with an all-steel construction, compressed air operated, side-dump trailer, on which there are also no records. At an unknown date a standard 25 ton locomotive crane (minus the steam boiler and engine) was acquired from American Hoist & Derrick Co., St. Paul, (Type #258, serial number 1243) and equipped for all electric operation with one G.E. CO 1812 motor and one G.E. R164A controller. About 1945 or 1949 a new locomotive crane was acquired from American Hoist & Derrick Co., also equipped for all-electric operation. At the end of streetcar operations in 1954 the Main Steam Station was sold to Northern States Power Co.; the sale included Electric Locomotive 20, the side-dump trailer, the old locomotive crane, and the new locomotive crane. The newer crane was disposed of by NSP in 1969 while the other three pieces of equipment were donated by NSP in 1968 to the Minnesota Transportation Museum. As the equipment was in deteriorated condition and beyond economical restoration, all three pieces of equipment were dismantled for parts during 1970 for use in reconstruction by MTM of the "Como-Harriet" line at Lake Harriet, Minneapolis.

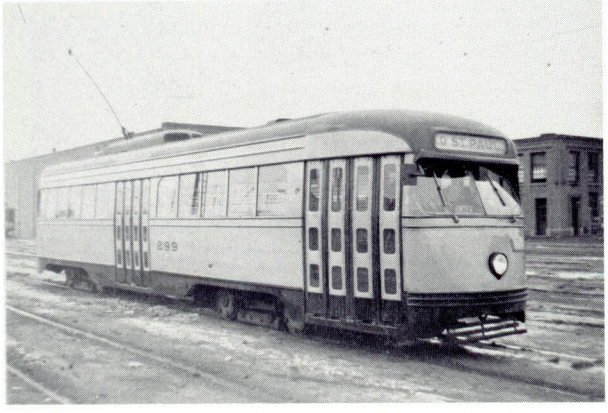
PCC Cars

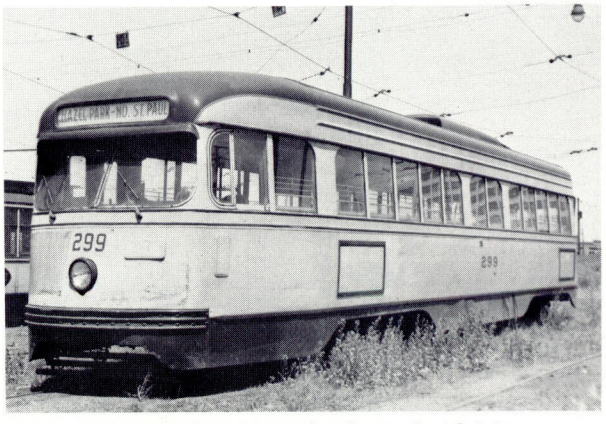
TCRT's Board of Directors during 1944 approved a program to purchase annually a number of lightweight, noiseless, streamlined streetcars (PCC cars) with the objective of replacing the existing fleet of TCRT-built equipment. An initial order was placed with St. Louis Car Co., St. Louis, Mo., for 40 PCC cars to be delivered from October through November, 1945.

In order to determine the exact specifications for the car order, TCRT wanted to experiment with an actual PCC car in regular service. St. Louis Car Co. diverted one car, 1547, from an order of sixty-five cars, 1500-1564, then under construction for Pittsburgh Rys. (Pennsylvania). The car was shipped directly to St. Paul in the Pittsburgh color scheme and carrying the Pittsburgh number. (A replacement car was built for Pittsburgh carrying the same number.) Built during January, 1945, the car was received in St. Paul on January 17, 1945, and placed in service February 23, 1945. For several months it operated with the Pittsburgh Rys. color scheme and number until TCRT decided to purchase the car. It was then repainted in the TCRT color scheme and renumbered; originally intended for number 3000 it actually came out of the paint shop as number 299. The car underwent considerable experimentation the results of which were embodied in the specifications for the current and subsequent car orders. Due to work stoppages caused by strikes at St. Louis Car Co. none of the cars ordered for 1945 delivery were received and for 22 months 299 was the only PCC car in the Twin Cities.

This car was 46'0" long, 8'4" wide, weighed 35,830 or 36,825 pounds, and was equipped with Clark B2 trucks, 4 Westinghouse 1432F (55 h.p. each) motors, Westinghouse controller, and combination electric and compressed air brakes. The car seated 52 persons with the Pittsburgh seating arrangement: longitudinal seats on both sides of the car between the front and center doors, and cross seats on both sides of the rear half of the car. The car was two-man operated.

The initial order of 40 cars was completed by St. Louis





Two views of the first PCC car, 299, at Snelling Station: left, when new (Joe Hutchinson collection); right, the "pole side", in July, 1953. (Robert A. Selle; James Foster collection)

Car Co. in late 1946 and placed in service on the "Interurban" line during December, 1946, and January, 1947. Cars 300-339 were 46'5⅜" long, 9'0" wide and weighed 37,990 lbs. These cars were all electrically-operated, with extended dynamic braking, drum brakes interlocked with center doors (no treadles), back-up controls, motor cut-out switches, overhead fans and monitor for pressure ventilation, standee windows, hand-cranked windows, folding doors operated in pairs (not individually as on 299), 25 lb. gong and Klaxon horn. All cars had Clark B2 trucks with 25" diameter Carnegie super-resilient wheels. Cars 300-319 had four Westinghouse 1432J (55 h.p. each) motors and XMA-202 controller; cars 320-339 had four General Electric 1220E1 (55 h.p. each) motors and KM-12N controller. All cars were two-man operated and seated 53 persons. Seating consisted of 21 cross seats (2 persons each), 6 cross seats (1 person each) located on the "gate side" only between center and front doors, and 1 transverse rear seat (5 persons). The cars were subsequently converted for one-man operation by removing the conductors seat and replacing it with a cross seat, increasing the seating capacity to 55 persons.

This Page

Above: PCC car 303 eastbound on Wabasha St. at the State Capitol, St. Paul. (Joe Hutchinson collection)

Left: Interior view of PCC car 382, looking toward the front. (William J. Olsen)

Facing Page

PCC car 407 on the "Grand-Monroe" line, Minneapolis, September, 1949. (Joe Hutchinson collection)

Apparently satisfied with the results obtained with 299, TCRT had ordered an additional 50 PCC cars in August, 1945, for delivery during September and October, 1946. Now permanently behind schedule, St. Louis Car Co. could not build these cars until 1947. 50 cars, 340-389, were placed in service during August, September, and October, 1947; the cars were identical in every respect to 300-339. Cars 340-364 were equipped with General Electric electrical equipment and cars 365-389 with Westinghouse electrical equipment, all of the same types as on 300-339. These cars were also two-man operated, seating 53 persons until 1951 when they were modified for one-man operation seating 55 persons (22 cross seats (2 persons), 6 cross seats (1 person), and 1 rear transverse seat (5 persons)).

The third and last order of PCC cars were also from St. Louis Car Co., consisting of 50 cars, 390-439, placed in service during May, June and July, 1949. These cars were also identical in every respect to 300-339. Cars 390-414 were equipped with Westinghouse electrical equipment and cars 415-439 with General Electric electical equipment, all of the same types as on 300-339. The cars were two-man operated, seating 53 persons until converted for one-man operation in 1951 seating 55 persons.

Heating on all PCC cars was chiefly by rheostat heat with some auxiliary electric heating. Thermostats were set for 55 degrees.

The exterior color scheme was identical to that used on the one/two man cars with one major exception: the entire roof and roof-mounted equipment were painted Moss Green.

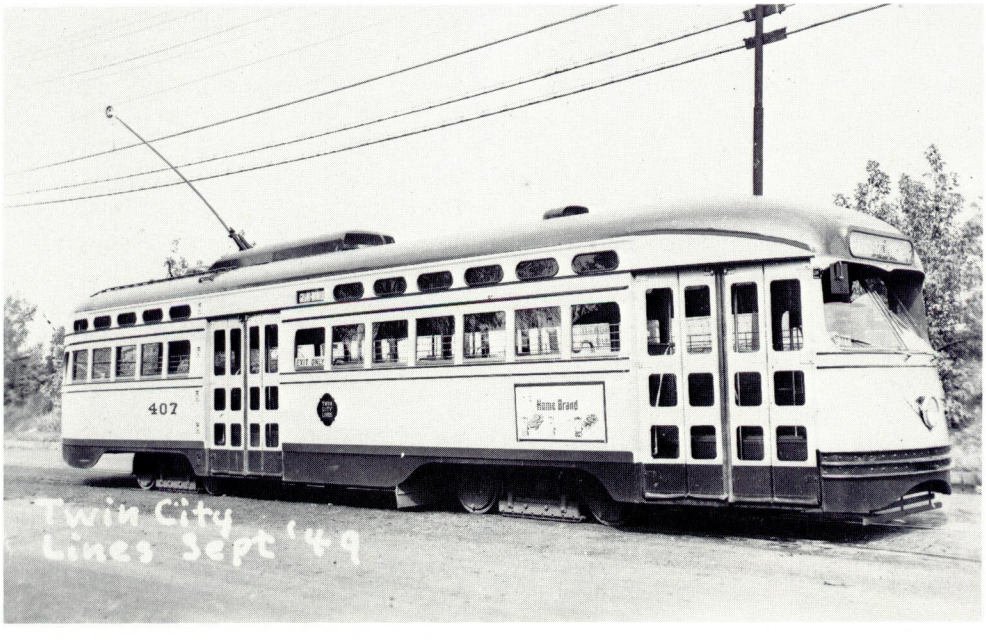
With conversion from streetcar to bus operation well underway, TCRT searched for buyers for its modern PCC car fleet. The first transaction was consummated in January, 1953, when 20 cars, 340-359, were sold to the Shaker Heights Rapid Transit Co. of Cleveland, Ohio. These cars were to be completely rehabilitated and repainted in SHRT colors by TCRT. Five cars (SHRT 51-55, ex-TCRT 340-344) were for single unit operation while 15 cars (SHRT 56-70, ex-TCRT 345-359) were to be rebuilt by TCRT for train operation. All 20 cars were to receive 26" diameter wheels. All labor and materials were furnished by TCRT except the equipment for train operation which was furnished by SHRT and installed by TCRT. Work consisted of re-wiring and adding equipment for train control, almost no body work being involved. Master controllers were rebuilt, line breakers changed, coupling equipment installed, new signal system installed, back up controls changed, front doors arranged for individual operation, Ohio Brass Co. trolley retrievers installed (replacing TCRT's trolley catchers), destination signs made, and the cars repainted to conform to SHRT 71-95. The cars were shipped during 1953 and 1954.

On March 30, 1953, 30 cars were sold to Public Service Coordinated Transport Co., Newark, New Jersey, for use in the Newark subway. These cars were merely put in good running order by TCRT with no equipment changes or repainting. Cars were repainted and renumbered in Newark as follows:

PSCT numbers	TCRT numbers
1-20	320-339
21-25	360-364
26-30	415-419

In August, 1953, TCRT contracted to sell all 91 remaining PCC cars to Servicio de Transportes Electricos del Distrito Federal of Mexico City, Mexico. These cars were rehabilitated and repainted by TCRT but no equipment changes were made. New colors were Light Cream body and roof with Green skirts and standee window panels. The cars were shipped during 1953 and 1954.

Mexico City numbers	TCRT numbers
2299	299 (delivered 1954)
2300-2319	300-319
2365-2389	365-389
2390-2414	390-414
2420-2439	420-439



Steamboats

Six Express Boats: "Como", "Harriet", "Hopkins", "Minnehaha", "Stillwater", and "White Bear", were built at the 31st St. Shops during November, 1905 through March, 1906; taken out to Lake Minnetonka they were launched May 7, 1906. Built from designs which had been accepted after an exhaustive investigation in all parts of the country, the boats were given the appearance of a standard electric streetcar: seating, windows, exterior painting and interior finish were identical. Details were as follows: 70' long, 14'10" beam; draft: 5'0" light and 5'7½" loaded; displacement (coaled) 62,000 lbs.; constructed of wood throughout: white oak ribs, cypress planking, and oak finish. Seating in the cabin was a combination of transverse seats, on either side of an aisle, and longitudinal seats; the upper deck (open to the elements on some boats with others ("Hopkins for one) equipped with a canvas canopy on a steel framework) was fitted with both transverse and longitudinal seats; total seating capacity was 106 persons according to TCRT data sheets (SRJ reported 135 total: cabin 65 and upper deck 70). Lower window sash dropped into side pockets (as on the streetcars) and Kinnear rolling steel doors were used for the side entrances. Interior colors were: ceiling with Natural Oak finish, posts and sidewalls with Cherry finish; exterior colors were Canary Yellow, Light Olive trim and Aluminum striping.

Mechanical equipment consisted of: one 150 h.p. 5½ x 9 x 15-9 triple expansion, condensing engine; one 250 p.s.i. Roberts "Safety" 5 x 7 water tube boiler (this was an upright boiler fired by soft coal); one 46" diameter propellor, driven at a 1:1.12 ratio providing a top speed of 12 m.p.h.; and one 10 h.p. DeLaval steam turbine driving an electric generator of 50-light capacity for electric lighting.

The boiler was located slightly forward of the side entrances with the engine immediately behind it. The lighting turbine was placed in the machinery pit behind the boiler near the engine. The machinery weighed 14 tons total and the coal bins carried 6 tons of coal.

The boats attracted much favorable attention. It was reported that a steamboat company in Italy was building a fleet of boats after the same design. Canopies were installed on the upper decks of all boats during April, 1911, at which time the toilets were removed.

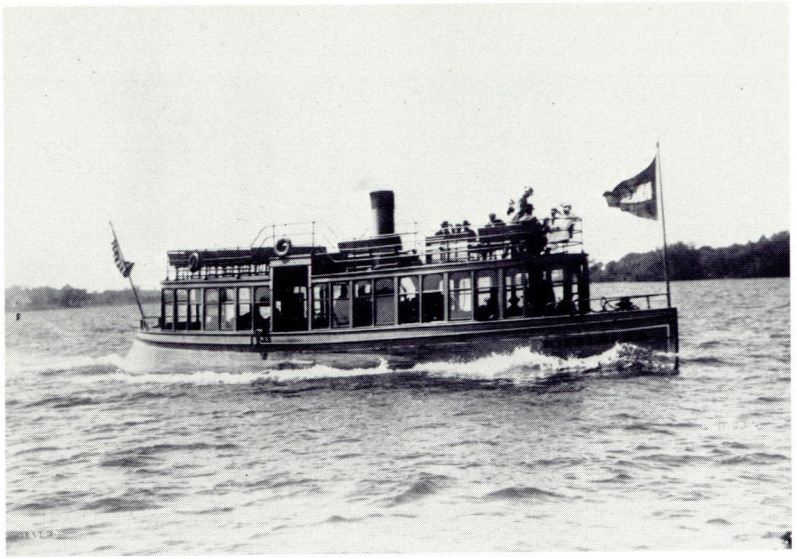
Three Ferry Boats: "Minneapolis", "Minnetonka", and "St. Paul". These were built during the winter of 1905-1906 outside on the lake shore near Deephaven. They were double end, triple deck, side paddle-wheel, steam powered boats designed for large capacity shuttle service from Excelsior Dock Station to Big Island Park. The side paddle-wheels (two) were driven by separate engines. SRJ reported that the boats were 108' long with 35' beam and a capacity of 1,000 persons. TCRT brochures report they were 142' long with 39' beam and had a capacity of 800 persons.

The older boats acquired from the Lake Minnetonka Transportation Co. and the Heywood Line have been described elsewhere. These boats were the "Mayflower", "Puritan", "Plymouth", "Priscilla" and "Excelsior". All were used only in excursion, sightseeing, and charter service after their acquisition. The "Priscilla" was practically out of commission by 1906 and probably was disposed of shortly after acquisition. The "Excelsior" was burned one summer evening in 1910. The event was heralded in advance and great crowds came from Minneapolis to witness the spectacle. With the closing of Big Island Park in August, 1911, the ferry boat, excursion, and sightseeing services were also terminated. The three ferry boats were dismantled during 1912; a public spectacle was made of the scuttling by fire of the "Minneapolis" on August 8, 1912, but rain thinned out the crowd of people. The "Mayflower", "Plymouth" and "Puritan" were dismantled in 1914; supposedly the engine from the "Mayflower" was used in construction of the tugboat "Hercules" in 1917.

One Express Boat: "Excelsior", built at the Excelsior boat yard during May, 1915, and launched June 14th. Construction utilized steel longitudinal trusses, cypress planking, oak finish, and bulkheads forming four water-tight compartments. It was 73' long with 14'5" beam, draft: 5'1" light and 5'7" loaded, weight (coaled) 76,600 lbs., and seated 119 persons on two decks. Mechanical equipment included: one 6-9-15x9 M.L.W. engine, one 250 p.s.i. 5 x 7 water tube boiler, and one 46" propeller, driven at a 1:1.3 ratio giving a speed of 14 m.p.h.

One Tugboat: "Hercules", built at the Excelsior boat yard during May, 1917, and launched June 10th. Construction utilized steel and wood with two water-tight compartments. It was also equipped with fire-fighting equipment. The boat was 50' long with 12'6" beam, weighed (coaled) 44,000 lbs., and had a draft of 4'9" light and 4'11" coaled. Mechanical equipment consisted of: one 7⅛ - 13½ x 10 engine, one 4 x 7 fire tube boiler, and one 44" towing propellor giving a speed of 8 m.p.h.

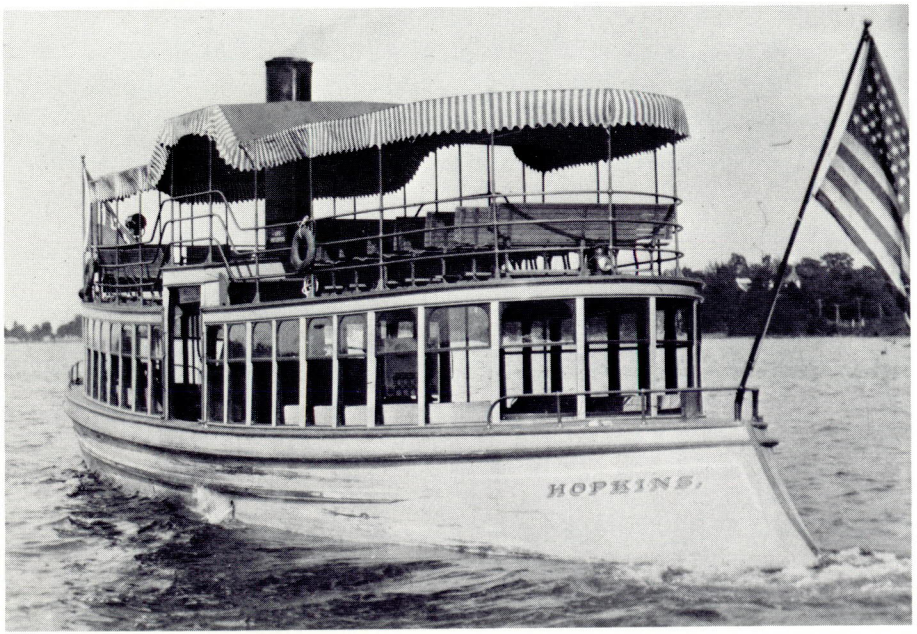
The decline in boat patronage in the early 1920's resulted in reduced schedules requiring fewer express boats. In July, 1925, the "Como", "Minnehaha", and "White Bear" were towed to deepwater north of Big Island, south of Brackett's Point, and scuttled by sinking. (Skin divers in 1967 spotted the sunken hulks.) The express boat "Excelsior" was equipped for tug purposes in May, 1926. The tugboat "Hercules" was scuttled by sinking in July, 1927. The express boat "Hopkins" was sold in September, 1927, to The Blue Line which was operated by Joseph Du Guise and George B. Hopkins. The three remaining express boats, "Harriet", "Stillwater", and "Excelsior" were scrapped in April, 1928.



Express boat "Minnehaha" under way, before upper deck canopies were installed. (Joe Hutchinson collection)

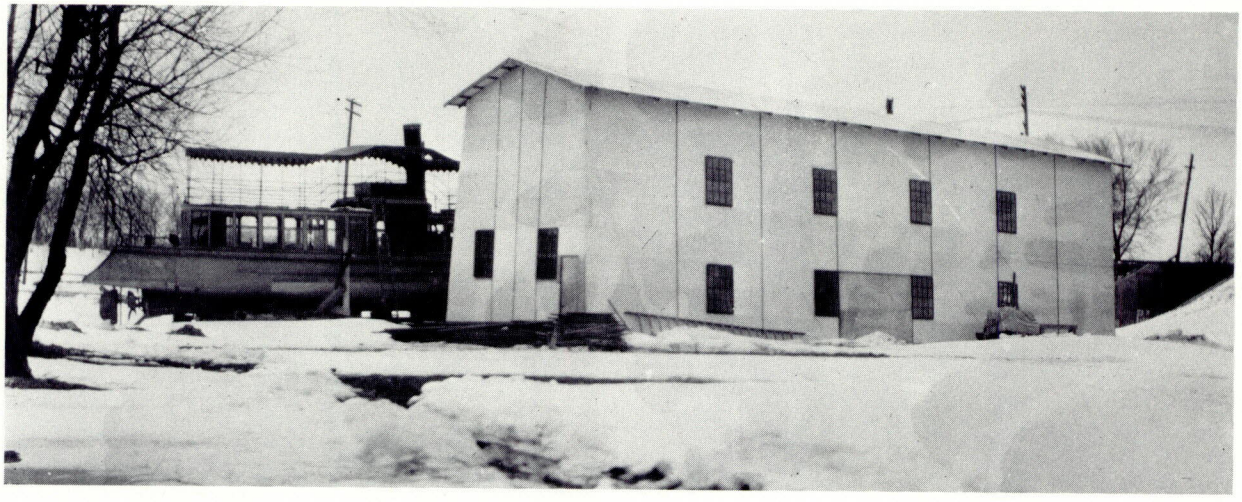
End view of the ferry boat "Saint Paul". (Lake Minnetonka historical collection of S. D. Dimond)

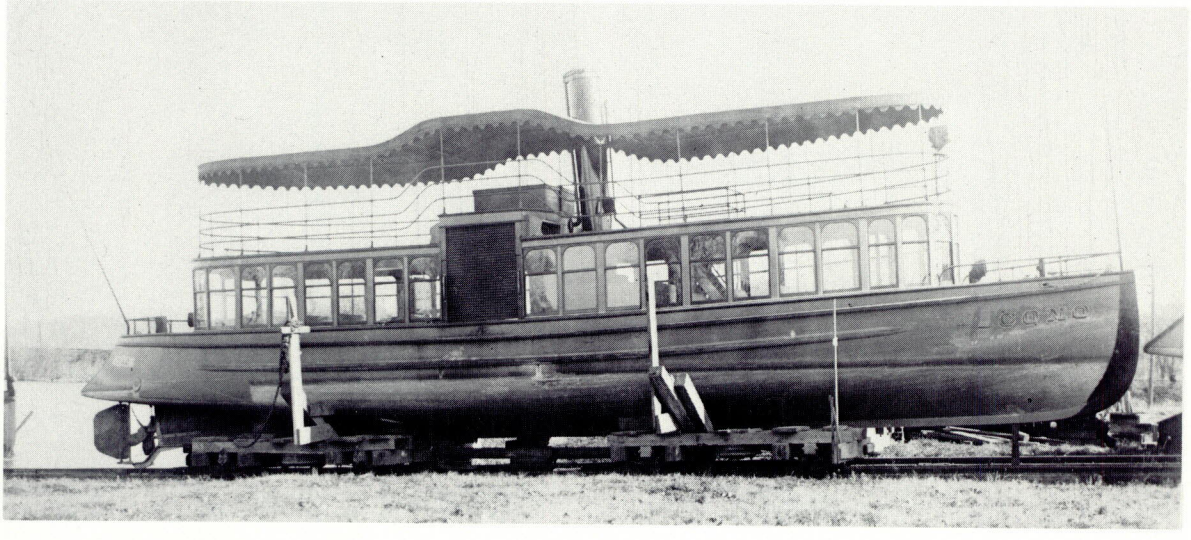
Ferry boat "Saint Paul". During 1906 the ferry boats proved unsatisfactory due to their low freeboard, and were rebuilt during the winter of 1906-1907. Compare this photograph with the one to the left. (Joe Hutchinson collection)

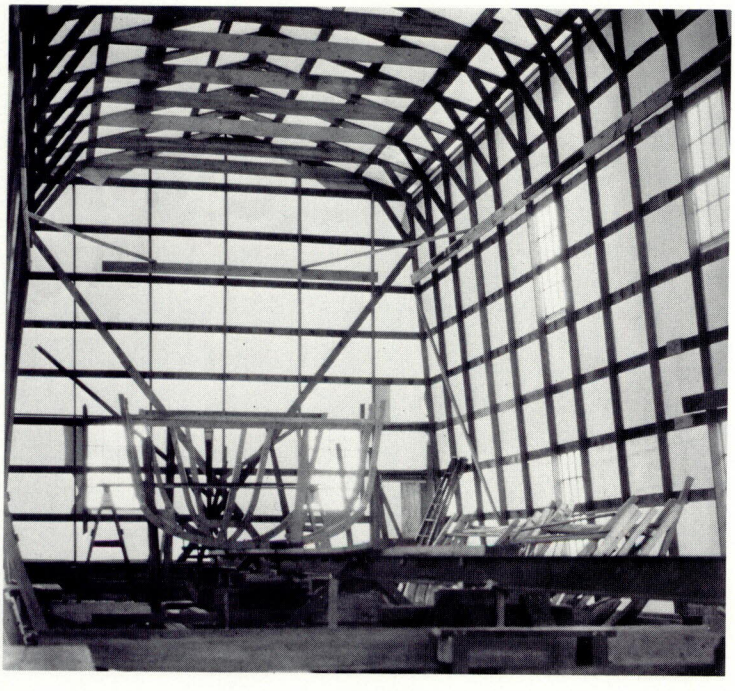


Stern view of the express boat "Hopkins", the first boat with an upper deck canopy. (Sweet Studios; William J. Olsen collection)

Interior of an express boat, looking toward the stern. The boiler is directly behind the stairway to the upper deck. (TCRT)







Above: An overall view of the Excelsior Boat Yard. The express boat "Como" is on the slipway behind the boat house. The electric railway bridge over the M. & St. L. Ry. can be seen at the far right. (TCRT)

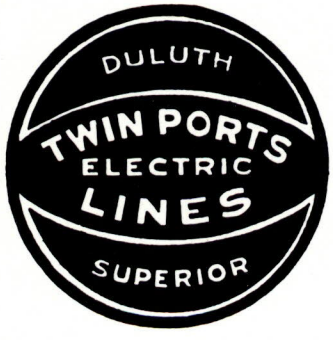
Center: A close-up view of the express boat "Como" on the slipway at the Excelsior Boat Yard. (TCRT; Joe Hutchinson collection)

Below: The express boat "Excelsior" under construction inside the boat house at the Excelsior Boat Yard. (TCRT)

SECTION II

DULUTH-SUPERIOR TRACTION CO.

"Twin Ports Electric Lines"



Looking west on Superior St., Duluth, about 1907-1911. The 8th Ave. W. loop can be seen at left center, and the incline railway car on the structure at right center. The first eastbound car is opposite the incline railway station at 7th Ave. W. (McKenzie Studios; Wayne C. Olsen collection)

Duluth, Minnesota's third largest city, is built against rock hills bordering the shore of Lake Superior, two bays and the St. Louis River, for a length of approximately twenty-six miles. The bluff rises to a height of 600 to 800 feet above the lake. Gorges of the spring-fed streams and wooded valleys reach into the heart of the city. It is the westernmost port on the Great Lakes; iron ore, taconite pellets and grain make up most shipments. Duluth grew rapidly after 1880 when the lumbering and iron ore industries developed. At one time Duluth was the world's largest inland port in respect to tonnage handled due to the immense quantities of iron ore shipped to steel mills in the east. Across St. Louis Bay from Duluth is Superior, Wisconsin's tenth largest city. Superior is one of Wisconsin's largest ports, handling iron ore, taconite pellets and grain. One of the largest ore docks and the largest grain elevator in the world are located there. A seven mile long sand bar, known as Minnesota Point, separates the Duluth-Superior harbor from the lake; canals near each end of the Point provide entrances to the harbor. The Point is connected to the mainland on the north end by the famous Aerial Lift Bridge.

Horse car systems were constructed in each city by separate companies, unrelated as to ownership. Each system was subsequently rebuilt for electric operation. When the Duluth-Superior Bridge across the bay was approved, thought was first given to operating the two systems as one. However the financial weakness of each company prevented this until 1900 when the same interests which controlled the Twin City Rapid Transit Co. succeeded in consolidating the two companies. The consolidated company also acquired the three real estate promotional electric lines in the Duluth area, and eventually acquired the company that operated the electric line on Park Point.

DULUTH ST. RY. – 1882 to 1900

The Duluth Street Railway Co. was incorporated in October, 1881, by William W. Billson (President), Frank W. Eaton (Secretary), Alois Ebmer, John M. Rich, Charles M. Wilson, Albert S. Chase, (all of Duluth) and S.L. Bayless (of St. Paul). The company secured a fifty-year charter from the Minnesota Legislature on November 17, 1881, provided that the grant would be wholly forfeited if one mile of road was not built, equipped and in operation within one year. Work on the first track was commenced September 11, 1882, a 3'6" gauge single track on the north side of Superior St. between 8th Ave. W. and 3rd Ave. E. with several passing tracks. Track materials consisted of light strap rails laid on pine stringers. Turntables were built at each end of the line. The first horse car was purchased second-hand from the St. Paul City Ry. and arrived in Duluth on November 22, 1882.

This car was about 17' long over-all, with a five-window body and small open platforms at each end, the front platform being just large enough for the driver to stand on. A longitudinal seat on each side of the car was provided and a stove was located in the right front corner.

It is believed that this car, pulled by a mule, was operated for a short time before winter forced a halt to operations as well as construction. The car was left standing on the track near the west end (between 5th Ave. W. and 6th Ave. W.) of the line all winter. Construction resumed in the spring of 1883 and two more horse cars were acquired. Full operation of cars over the entire line, using mules, was begun July 6, 1883. By this time the company's only stockholders were: Albert S. Chase (General Manager), O.P. Stearns, N.J. Miller, Alois Ebmer and Luther Mendenhall.

Extensions of the original line were made as follows:

Single track on Superior St. and Michigan St. from 8th Ave. W. to 11th Ave. W. in 1884.

Single track on Michigan St. from 11th Ave. W. to Garfield Ave. in 1885.

Single track on Superior St. from 3rd Ave. E. to 13th Ave. E. in 1886.

Single track on Michigan St. from Garfield Ave. to 18th Ave. W., on 18th Ave. W. to Superior St., and on W. Superior St. from 18th Ave. W. to 23rd Ave. W., opened October 31, 1887.

Single track on Superior St. from 14th Ave. E. to 22nd Ave. E. in 1888. The ravine formed by Chester Creek between 13th and 14th Ave. E. had not been bridged so shuttle service was operated on the new extension until a connecting fill was completed; through operation began September 3, 1889. Second track added on Michigan St. from 11th Ave. W. to 13th Ave. W. in 1888.

Single track on Superior St. from 23rd Ave. W. to 28th Ave. W., completed in November, 1889.

This was the extent of the horsecar system prior to electrification consisting of 4.22 miles of line and about 4.5 miles of track. A horsecar barn and stables were built during 1885 on the southwest corner of 11th Ave. W. and Michigan St. Twelve additional horsecars and fifty mules were purchased April 14, 1886; the newspaper reported the cars were purchased new in the Twin Cities. Three new horse cars and forty-eight mules were purchased May 12, 1888, thus making it possible to maintain five minute headway on the line. The 1890 U.S. Census listed ownership of 15 horse cars and 178 mules.

In August, 1886, an amendment to the articles of incorporation was filed; the new board of directors consisted of five persons, each holding a 20% interest in the company: Samuel Hill (President) and Thomas Lowry, both of Minneapolis; Thomas P. Wilson, of St. Paul; Albert S. Chase (Secretary) and Albert L. Ordean, both of Duluth.

Electrification fever was spreading in Duluth as a result of the experimental lines in Minneapolis and St. Paul. Financing the conversion was the major obstacle. Albert

Left: Looking west on Superior St., Duluth, at Lake Ave. about 1886.

The two story frame structure at center right is the horsecar barn at 11th Ave. W. and Michigan St. Note the rock crusher at lower right, located at 12th Ave. W.

(Both photographs Wayne C. Olsen collection)

Chase received a telegram February 19, 1890, from Thomas Lowry in the east, stating that he had been successful in raising $500,000 for establishing a complete electric railway in Duluth as well as extending lines to West Duluth and other localities, plus building the incline railway on 7th Ave. W. and a line on top of the hill from the incline. Meanwhile, competitors were pressuring the city council for permission to operate an electric railway. Franchise terms for the electrification were not resolved until the end of April, 1890. Immediately thereafter began the task of purchasing and installing steam powered generating equipment, heavier rail to 4'8½" gauge, and overhead poles and wire; paving Superior St.; and training personnel to operate the new electric motor cars. The Northwest Thomson-Houston Co. received the contract for electrification of the system. The existing horsecar line was completely rebuilt and opened as an electric line on November 8, 1890. A newly-built second line on East 4th St. was opened December 21, 1890.

In June, 1891, it was announced that A.R. Macfarlane, Luther Mendenhall, O.P. Stearns, John A. Willard and several others had purchased the 40% interest of A.S. Chase and T.P. Wilson. This, plus the 20% interest owned by Guilford G. Hartley (apparently he had acquired A.L. Ordean's interest), gave controlling interest to Duluth industrialists. Officers elected June 8, 1891, included G.G. Hartley (President), Thomas Lowry, Samuel Hill and Luther Mendenhall. Apparently some financial difficulties were encountered for it was reported that the stockholders authorized the directors to apply to District Court for a receiver to operate the property for the benefit of stockholders and creditors on August 5, 1891, but this was terminated effective August 28, 1891.

Offices were established in the First National Bank Building, 21 W. Superior St., in October, 1891.

In November, 1893, Herbert Warren was appointed General Manager. He had been chief clerk in the office of St. Paul City Ry. General Manager Willard Hield. Mr. Warren was to serve DSR in an executive capacity until his retirement in 1938.

DSR continued to construct additional lines throughout the 1891 to 1897 period. DSR also undertook operating the three real estate promotion company electric lines, acquiring one of them in the process. All of this is explained in more detail in the section on each line. General offices of the company were moved to the company building at 11th Ave. W. and Michigan St. effective November 29, 1897. Officers were: Luther Mendenhall (President), G.G. Hartley (Vice President), T.W. Hoopes (Secretary and Treasurer), Herbert Warren (General Manager), Walter J. Smith (Master Mechanic), Matt Noble (Chief Engineer), and Thomas Armstrong (Roadmaster).

The Duluth-Superior Traction Co. of New Jersey had been incorporated in June, 1894, and subsequently acquired 99.95% of DSR capital stock in exchange for its capital stock. (See the section on Duluth-Superior Traction Co.) DSR continued as the operating company with D-STC as a holding company.

The cost of electrification and expansion of the system coupled with the effects of the 1893 financial depression resulted in DSR's defaulting on the interest payments on its first and second mortgage bonds in 1898. On July 7, 1898, DSR entered receivership with Luther Mendenhall appointed as Receiver.

DOUGLAS COUNTY STREET RAILWAY SUPERIOR RAPID TRANSIT RY. CO. – 1884 to 1900

The Douglas County Street Railway was incorporated in April, 1884, with the following stockholders: J.H. Hammond, W.P. Clough, A.G. Foster, E.W. Winter, (all of St. Paul, Minn.); John C. Spooner (Hudson, Wisc.); Hiram Hayes, James Bardon, George L. Brooks, Wm. J. Conan, and Peter E. Bradshaw (all of Superior). On March 29, 1884, the Town Board of Superior passed an ordinance granting the company authority to construct and operate a street railway line anywhere in the Town of Superior. No construction was undertaken and the Town Board extended the time of completion to September 1, 1887. On April 1, 1887, Henry D. Minot of Boston secured control of the company and began construction of the horse car line that summer. A horsecar barn was constructed at 5th St. and Newton Ave. (25th Ave. E.). The line began at 5th St. and Newton Ave., and ran west on 5th St. to Thompson Ave. (22nd Ave. E.), north on Thompson Ave. to 2nd St., and west on 2nd St. to the intersection of Bay and Winter Streets. On August 22, 1887, the Town Board passed an ordinance stating that the line had been located, constructed and equipped; if it could maintain daily service from 7:00 A.M. to 6:00 P.M. from the courthouse terminal (5th & Newton) to the outer end before September 1, 1887, such service continued until April 1, 1888, would be considered full operation of the line. Operation did begin on an irregular basis; no attempt was made to furnish regular service but four daily trips were made for several months to bear witness that the terms of the ordinance had been complied with. Three cars were purchased but only two were used. The company was authorized by the Town Board to operate barges or sleighs in lieu of horse cars from the courthouse to Winter St. and on Winter St. to the Tower Ave. Hotel in West Superior from December 6, 1887, until April 15, 1888. No further mention is made of operation on this line.

In the spring of 1889 Superior was incorporated as a city and on July 9, 1889, the city council passed an ordinance which renewed the franchise of the Douglas County St.

Douglas County St. Ry. early electric equipment, consisting of five motor cars and two trailers, at Belknap St. and Catlin Ave. about 1890. (Wayne C. Olsen collection)

Ry. but changed the original route and required the construction of additional lines. Officers and directors of the company at this time were: Henry D. Minot (President), John A. Bardon (Secretary), C.W. Bunn, Frank E. Ward and Peter E. Bradshaw; S.T. Norvell was Superintendent. The routes required by the ordinance were as follows:

To be completed within six months from July 9, 1889: (1) from 5th St. and Newton, on 5th St., L Ave., 7th St., and Belknap St. to Tower Ave. and Belknap St., and (2) on Tower Ave. from 3rd St. to 21st St.

To be completed after 1889 as soon as streets were in suitable condition: (3) loop line from Belknap St. and Catlin Ave. on Catlin Ave. to Broadway, and on Broadway (or Winter St.) to Tower Ave.

To be completed after May 15, 1890, as soon as streets were in suitable condition: (4) on 3rd St. from Tower Ave. to Lamborn Ave.

The first horse cars began operating on December 23 or 24, 1889, on the first two lines mentioned in the ordinance. Office and stables were located in the original building at 5th St. and Newton Ave. (25th Ave. E.) (where the Northern Pacific Ry. depot was later constructed). Four horsecars and eight horses were owned, as of February 1, 1890.

Electrification of the initial two lines was in the early planning stages while the horsecar lines were still under construction. Capitalization of the company was increased in March, 1890, for financing the planned electrification. The Northwest Thomson-Houston Co. received the contract for electrification which was promptly undertaken and the first three miles of electric line were opened for traffic on July 1, 1890. This was increased to about six miles by the end of 1890.

1891 directories of the period list the company offices as located in the First National Bank Building, or the Trade and Commerce Building. Officers by this time were: S.T. Norvell (President and General Manager), Frank G. Peters (Secretary), and W. Slack (Treasurer).

The Superior Rapid Transit Ry. Co. was incorporated in August, 1892, by Samuel Barnes (President), Frederick W. Hanson (Secretary), and William Neville. They offered to purchase DCSR for 9987 shares of fully paid capital stock of SRTR plus $450,000 in bonds secured by a mortgage with Central Trust Co. of New York as trustee. The offer was accepted on August 12 by DCSR and shortly thereafter SRTR succeeded to the rights and properties of DCSR. Later in 1892 officers and directors of SRTR were: Stephen T. Norvell (President and General Manager), Frederick W. Hanson (Secretary and Treasurer), James Bardon, (all of Superior) and Charles Fairchild (of Boston).

DCSR had undertaken additional track construction in 1892 which was completed by SRTR and SRTR also constructed additional track in 1892 and 1893. To finance this additional construction $200,000 in second mortgage bonds were issued July 3, 1894, again with the Central Trust Co. of New York as trustee. However SRTR defaulted in payment of interest on the second mortgage bonds and was placed in receivership January 28, 1896; S.T. Norvell and Frank W. Oakley were appointed Receivers.

The foreclosure sale was held on June 16, 1900; the property was purchased for $350,000 by Marcus D. Munn (Twin City Rapid Transit Co.'s legal counsel) acting as agent for the second mortgage bond holders. Directors of SRTR subsequently elected were: S.T. Norvell, Thomas Lowry, G.G. Hartley and Luther Mendenhall.

DULUTH-SUPERIOR TRACTION CO. (NEW JERSEY)

DULUTH-SUPERIOR TRACTION CO. (CONNECTICUT) – 1894 to 1933

DULUTH STREET RAILWAY – 1900 to 1933

The need for a bridge across St. Louis Bay connecting Duluth and Superior caused the incorporation of the Duluth-Superior Bridge Company prior to 1895, but the names of the officers and directors are not known. Interest in combining the street railway systems of both cities under one management had led to the incorporation in June, 1894, of the Duluth-Superior Traction Co. of New Jersey by Luther Mendenhall (President), G.G. Hartley and Thomas Lowry. The principal office was located at Elizabeth, N.J. This corporation proceeded to acquire 2,991 shares of Duluth St. Ry. $100 par value stock for $1,999,000 (the total amount of DSR stock with the exception of directors' qualifying shares in the amount of $1,000) in exchange for capital stock of the D-S TC of NJ.

Long and patient efforts in the Minnesota and Wisconsin legislatures finally produced authorization, effective January 1, 1896, to construct the Duluth-Superior Bridge. Documents in DSR files indicate that D-STC (NJ) became involved in the bridge construction; lack of complete information creates confusion as to what actually occurred. What is known is summarized as follows: D-STC (NJ) made an agreement with the Duluth-Superior Bridge Co. June 23, 1896, to the effect that D-STC (NJ) would construct the bridge in exchange for $200,000 in capital stock, $650,000 in first mortgage bonds, and $300,000 in second mortgage bonds of the D-SBC. On July 31, 1896, D-STC (NJ) made another agreement with the D-SBC to lease the completed bridge from D-SBC for a period of thirty years from May 1, 1897, the date on which the bridge was to be completed. Also on July 31, 1896, D-STC (NJ) made a joint lease agreement with DSR and SRTR for use of the bridge by streetcars. On August 1, 1896, the D-SBC conveyed all its property and franchises to a trustee to secure payment of $650,000 in bonds that had been issued by D-SBC. Then on August 12, 1896, D-STC (NJ) sold to Stephen T. Norvell (who was also the Receiver of SRTR) a one-half interest in the two lease agreements of July 31, 1896. By July 1, 1897, when the bridge was substantially completed, D-STC (NJ) owned only $100,000 in capital stock and $108,000 of first mortgage bonds of the D-SBC which makes it appear that most of the actual bridge construction was performed through the D-SBC. Meanwhile the Duluth-Superior Traction Co. of Connecticut had been incorporated in January or May, 1897, by A. Heaton Robertson, Henry Sanford, J.M. Hall, Morton F. Plant, R.G. Erwin, W.P. Douglas, and C.A. Congdon (a group apparently organized by Thomas Lowry) with its principal office in New Haven. The D-STC (Conn.) voted to issue $2,000,000 in capital stock in exchange for an equal amount of capital stock of the D-STC (NJ); all of the assets, property, contracts and leases of the latter company were assigned to the former company effective July 1, 1897. The D-SBC subsequently defaulted in payment of principal and interest on all of the bonds secured by the trust deed and was forced into receivership by January, 1899. (G.G. Hartley was appointed Receiver on April 4, 1899.) On November 8, 1899, the trustees commenced a foreclosure suit against D-SBC. In order to discontinue the foreclosure suit, discharge the receiver and restore control of the bridge to D-SBC, a series of agreements was entered into between D-SBC, D-STC (Conn.), and DSR whereby all of the original contracts, leases and assignments were cancelled or modified so as to result in DSR leasing the bridge from D-SBC. The agreements were dated November 1, 1900, but not executed until January, 1901. The D-SBC subsequently became an affiliate of the Great Northern Ry.

Interior view of the operator's control house on the Duluth-Superior bridge. (Joe Hutchinson collection)

Meanwhile, the D-STC (Conn.) engaged the firm of Ford, Bacon & Davis, consulting engineers, to study and evaluate the Duluth and Superior properties. Their report, dated March 20, 1900, concluded in general that (1) Duluth management was capable and progressive (if any criticism was necessary it was that too much expense had been put on maintenance of car equipment and too little on maintenance of track (all track was in bad condition as to joints, bonds, surface, and alignment)); and (2) Superior management was at the mercy of rundown construction and equipment.

Apparently the financial problems of the various companies together with Thomas Lowry's objective of combining the Duluth and Superior systems led to the complicated legal moves previously related. Based upon the Ford, Bacon & Davis report, the SRTR had been acquired at the foreclosure sale June 16, 1900, by the group headed by Thomas Lowry. DSR was released from receivership on August 12, 1900, still owned by the D-STC (Conn.) which was also controlled by the group headed by Thomas Lowry. On August 13, 1900, the SRTR was consolidated with DSR, DSR being the surviving corporation. The two remaining real-estate promotion electric railways were also acquired by DSR, the Lakeside Ry. being purchased on September 1, 1900, and the Woodland Company on July 1, 1901.

It was reported that by 1909 the D-STC (Conn.) carried on its books a charge totaling $1,500,000 against DSR, probably representing cash advances to make the foregoing acquisitions. About 1909 the account was eliminated by the exchange of capital stock. After the exchange it was reported that the capital stock of D-STC (Conn.) outstanding was $5,000,000, some of which was owned by stockholders of the former D-STC (NJ) and some by those who were stockholders of DSR before the 1900 consolidation.

The officers and directors of Duluth St. Ry. during the early years of the consolidated operation (when the ambition was to make Duluth and Superior a metropolis equal to the Twin Cities) were: C.G. Goodrich (President), Luther Mendenhall (Treasurer), S.L. Reichert (Secretary), Herbert Warren (General Manager), Thomas Lowry, G.G. Hartley, M.D. Munn, Joseph Sellwood, and T.W. Hoopes. After the deaths of Thomas Lowry and

Calvin Goodrich the officers and directors of DSR and D-STC (Conn.) were nearly identical and with minor changes remained that way until re-organization after receivership in 1933.

D-STC (Conn.): A.M. Robertson (President) (also a Vice President of Twin City Rapid Transit Co.), Herbert Warren (Vice President and General Manager), S.L. Reichert (Secretary-Treasurer); A.E. Ames (Toronto), Horace Lowry (Minneapolis), Luther Mendenhall (Duluth), W.H. Goadby (New York), F.H. Deacon (Toronto), and Edmund Zacher (New Haven).

DSR: A.E. Robertson (President), Herbert Warren (Vice President and General Manager), S.L. Reichert (Secretary-Treasurer); A.E. Ames, Horace Lowry, Luther Mendenhall and F.H. Deacon.

Other operating officials of DSR in the peak years of operation were: W.P. Dwyer (Auditor), Harry H. Brown (Supt.-Duluth Division), Alfred Williams (Supt.-Superior Division), Otis Birdsall (Purchasing Agent), John Carson (Chief Engineer and Electrical Engineer), R.J. Crawford (Master Mechanic) and Thomas Armstrong (Roadmaster).

The peak year of rail operation was 1919 when 38,474,440 passengers were carried, 5,538,842 car miles operated, and 670 persons employed. The population of Duluth was approximately 95,000 and Superior 40,000 persons for a combined total of 135,000 persons.

The last addition to the system took place on September 1, 1917, when the Park Point Traction Co. was acquired.

Rising operating costs, automobile competition resulting in falling revenues, all plagued DSR in the same manner as other companies in the industry. Due to the geographical layout of each city, the population density per square mile was very low and many of the lines were necessarily very long. (Duluth had 67.34 square miles with approximately 1500 persons per sq. mile while Superior had 36.60 square miles and approximately 1000 persons per sq. mile; the average for cities of similar size was 3500+ persons per square mile). Thus the service furnished produced insufficient revenue to justify the cost. The seating capacity of the streetcars was large making it difficult to maintain satisfactory headways without providing too many seats. The Incline Ry. and Highland Ave. line operating costs greatly exceeded the revenue. The conversion to one-man car operation began in Superior during 1924 and 1928 in Duluth. In March, 1925, 7% Cumulative Preferred Stock was sold to employees and the public to procure additional capital for property improvements. The first operation of motor buses started in December, 1924. Peak track mileage was reached in 1929. Intercompany correspondence of the 1925 to 1927 period indicated that patronage in Superior had fallen off to an alarming degree.

Luther Mendenhall died September 26, 1929. He had been a director of DSR from 1883 to 1927, President of D-STC (Conn.) from 1898 to 1900, and a director of D-STC (Conn.) from 1897 until his death.

In May, 1929, it was reported that mortgaged debt of over $3,000,000 was due May 1, 1930, and present earnings were insufficient to insure necessary refinancing at satisfactory terms, if at all. The financial depression of 1929 added the finishing touch and the company entered receivership May 2, 1930; Oscar Mitchell was appointed Receiver.

DULUTH-SUPERIOR TRANSIT CO. – 1933-1939

Under the receiver the first abandonments of streetcar lines took place, the first in 1930, and several more during 1931. The Duluth-Superior Transit Co. was incorporated in January, 1933, and a re-organization of the Duluth St. Ry. resulted in transfer by DSR to D-STC of all its property effective September 1, 1933. Officers of D-STC were: Herbert Warren (Chairman of the Board), B.G. Noah (President and General Manager), Oscar Mitchell (Vice President) and S.L. Reichert (Secretary-Treasurer).

The holders of securities and stock of DSR received in exchange for such holdings the following in bonds and no-par value capital stock of D-STC: to the holders of the $2,388,000 of First Mortgage Bonds, $50 in cash, a new bond for $500 and 11¼ shares of stock for each $1,000 face value of their holdings; to the holders of the $507,000 General Mortgage Bonds, $50 in cash and 15 shares of stock for each $1,000 face value of their holdings; to the holders of 3,437 shares of $100 par value 7% preferred stock, one share of stock for each share held; and to Duluth-Superior Traction Co., holder of the 18,000 shares of $100 par value common stock, 1500 shares of stock on the condition of the surrender of the 18,000 shares of common stock and all of its other personal and real property to D-STC.

Thus the Duluth-Superior Traction Co. became the owner of 1500 shares out of about 39,000 shares of the no-par value capital stock of D-STC.

A.M. Robertson, President of DSR and D-STC (Conn.) died in July, 1933. B.G. Noah, President of D-STC left in 1936 to become assistant to the President of TCRT; officers of D-STC then became: Herbert Warren (President), R.B. Thompson (Assistant to the President), and S.L. Reichert (Secretary-Treasurer). Herbert Warren retired in 1938 and the officers became: Homer Collins (President), R.B. Thompson (Vice President and General Manager) and S.L. Reichert (Secretary-Treasurer). Abandonments of streetcar lines began in earnest during 1934; the last line in Superior ceased operating during 1935 and the final operation in Duluth ended during 1939.

In 1945 the Duluth-Superior Traction Co. was liquidated. The 1500 shares of Duluth-Superior Transit Co. stock was distributed on the basis of one share of Transit Co. stock for each 10 shares of Traction Co. preferred stock owned.

WOODLAND COMPANY MOTOR LINE IMPROVEMENT CO.

The Motor Line Improvement Co. was organized in February, 1890, to build a motor line from the end of DSR's proposed "E. 4th St." line to the new cemetary at Woodland. It was intended to convert to electricity when DSR completed its powerhouse. The incorporators were: A.R. Macfarlane (*), R.M. Hunter (*), G.G. Hartley (*), M.J. Forbes, J.D. Howard, H.M. Peyton (*), J.A. Willard, A.S. Chase (*), Joseph Sellwood (*), J. Mannheim, J.D. Stryker, S.L. Seldon, J.H. Upham and S. Chapman. The first board of directors consisted of nine persons, the six marked (*) foregoing plus D.A. Petre, J.D. Ensign and W.W. Billson.

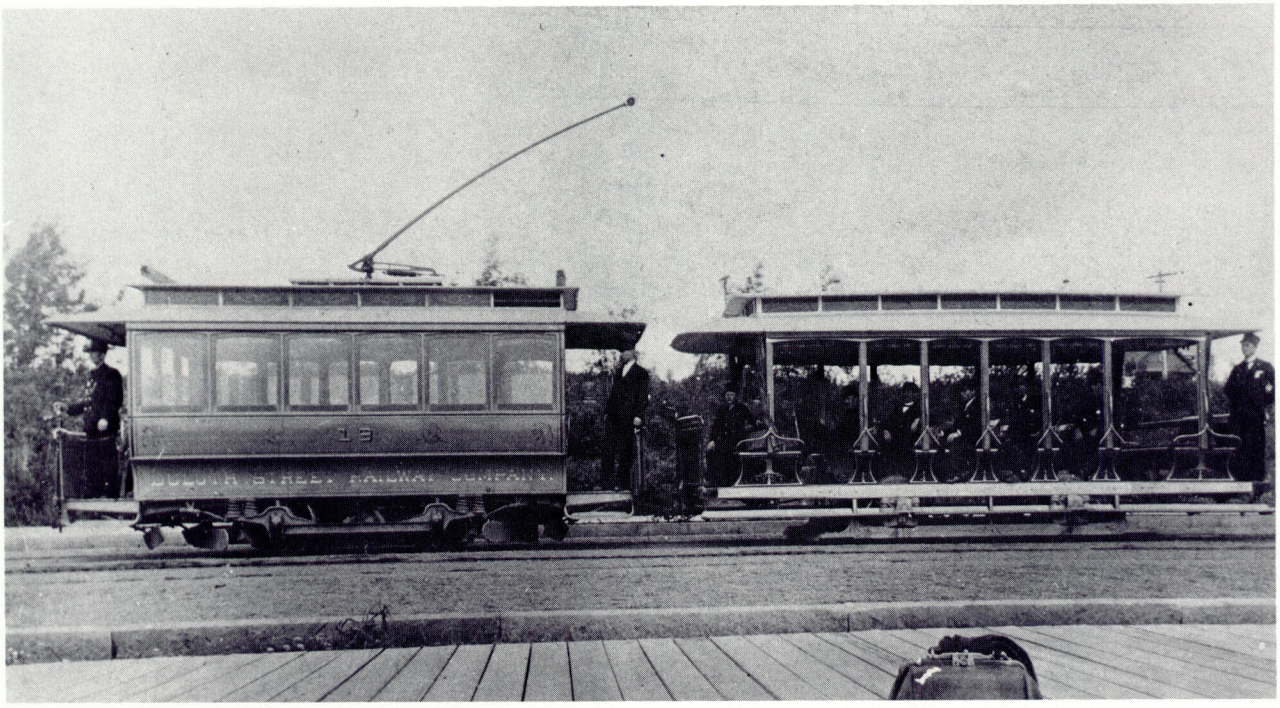
A single track electric line was built by the Northwest Thomson-Houston Co. on Woodland Ave. from a junction with DSR's "E. 4th St." line at E. 4th St. and 20th Ave. E. to Austin St. This was referred to at first as the "Glen Avon" line. The first car over the entire line ran on April 20, 1891, and regular service was started April 28, 1891. That part of the line within the City of Duluth was built under DSR's franchise. Equipment consisted of: two single truck, closed passenger motor cars named "Woodland" and "Duluth" built by Brownell Car Co. in 1890. (These later became DSR 89-90.) (They arrived in Duluth on November 11, 1890, and were used by Duluth St. Ry. on its lines until MLIC was ready to put them in service.); four single truck, nine-bench, open trailer cars, 25' long, 1-4, built by Brownell Car Co. in April, 1891. (These later became DSR 91-94.)

During September and October, 1891, DSR extended the track on E. 4th St. from 20th Ave. E. to 27th Ave. E. MLIC then began grading Wallace Ave. and St. Marie St. (formerly Petre St.) between E. 4th St. and 27th Ave. to Woodland Ave. Tracks were laid during December, 1891, and that portion of the original line on Woodland Ave. between E. 4th St. at 20th Ave. E. and St. Marie St. was abandoned. The reason for the change was to avoid the steep grade at Clover Hill.

A directory of the 1891 period lists 3.375 miles of track (35 lb. T rail), two motor cars, and four trailer cars; the officers were G.G. Hartley (President), T.W. Hoopes (Secretary and General Manager) and A.R. Macfarlane (Treasurer). In March, 1892, A.R. Macfarlane was listed as Trustee, indicating that financial problems had beset the little road.

On October 1, 1892, MLIC and DSR entered into an agreement whereby DSR would operate, maintain, repair and renew the plant and equipment at DSR's actual cost, the fares collected to be credited against the cost. The cars were to be owned by MLIC. Operation was to be in conjunction with DSR's line on E. 4th St. east of 14th Ave. E. to the end of MLIC's line; 10 minute service was

The original single track line of the Motor Line Improvement Co. on Woodland Ave., November, 1890. (Wayne C. Olsen collection)



Duluth St. Ry. motor car 19 pulling Motor Line Improvement Co. trailer 1. (DSR; Wayne C. Olsen collection)

to be provided from 5th Ave. W. and Superior St. to Woodland Park. The agreement also stated that MLIC owned the electric line from E. 4th St. and Massachusetts Ave. (27th Ave. E.) to Woodland Park and listed it as partially equipped.

The Woodland carhouse was destroyed by fire on November 16, 1894; it was located at the end of track at Woodland Ave. and Austin St.

Sometime between October, 1900, and July, 1901, MLIC was acquired by the Woodland Company, a Wisconsin corporation. In 1901 the officers of the Woodland Co. were listed as T.W. Hoopes (President) and James Bardon (Secretary).

The Woodland Company's tracks gradually deteriorated to a very poor condition. DSR refused to operate its cars over the tracks contending that through neglect they were no longer safe, causing undue wear on the cars resulting in interruptions of service. No cars were operated October 1 through 6, 1900, and again June 30 to July 2, 1901, due to track conditions.

Apparently Woodland Company finances were inadequate to repair the track, for Woodland Company issued a bill of sale dated July 1, 1901, to DSR which included: sale of right-of-way from E. 4th St. and 27th Ave. E. to the north end of the line at Woodland Park; all rails, wire, ties, bridges, trestles, and poles from E. 4th St. and 27th Ave. E. to Hunter's Park switch (said materials to be used by DSR in reconstructing the line; any material not used was to be returned to WC); and all rails, ties and wire used in construction of the westerly track from Hunter's Park switch to the north end of the line at Woodland. DSR agreed to repair the line from E. 4th St. and 27th Ave. E. to Woodland so that it could be safely operated as a single track or a double track line, or as a part single track and part double track line south of Hunter's Park and single track north of Hunter's Park. When DSR did rebuild the line it was agreed that DSR could relocate part of the line on Wallace Ave. (either single track or double track at DSR's option) and when completed the track then located on St. Marie St., Petre's bridge and Woodland Ave. could be abandoned. (A DSR drawing of the proposed relocation dated February 15, 1902, indicates that the existing track on the bridge over Tischer's Creek was single track, apparently creating operating and maintenance problems.) DSR also agreed to provide service to Hunter's Park sufficient to reasonably accommodate the public, and to operate at least seven trips daily to Woodland, all cars to run through to and from the central section of Duluth.

From 1901 through 1903 DSR was busy upgrading the entire line. During 1902 DSR built a new bridge across Tischer's Creek at Wallace Ave., and double track was extended from Wallace Ave. and St. Marie St. on Wallace Ave. across the new bridge to the junction of Wallace Ave. and Woodland Ave. at Hardy St. The original track on Woodland Ave. and St. Marie St. was then abandoned. DSR also during this period extended the second track on Woodland Ave. to a point between (1) the Carlisle St.-Fairmount St. intersection, and (2) Stornaway St.

HIGHLAND IMPROVEMENT CO.

The Highland Improvement Co. was incorporated in September, 1889, as the successor to the Duluth Heights Land Co., for the purpose of developing and promoting the sale of real estate along Highland Ave. in the Duluth Heights First Division. The plan was originally conceived in May, 1889, when Thomas Lowry, J.J. Hill, Sam Hill, Thomas Wilson and two Boston capitalists inspected the site. As this area was located at the top of a very steep bluff it became obvious that an incline railway was the only possible means of providing access to the area. Operation of a rail line on the bluff top beyond the terminus of the incline railway was also considered. Thomas Lowry's fund raising trip in the east during early 1890 resulted in funds becoming available for the construction. An agreement between DSR and HIC was made on July 25, 1891, whereby HIC would spend at least $50,000 in beautification and street improvements, secure the necessary right-of-way on 7th Ave. W. for the incline railway, and pay DSR $10,000 toward the cost of building the incline railway; DSR was to construct, operate and maintain the incline railway. Further details on the construction and operation of the incline railway are discussed in a separate chapter.

Meanwhile HIC and DSR undertook construction of the streetcar line on Highland Ave. DSR built approximately 3,200 lineal feet of track from the top of the incline railway to Highland Ave. and Winter St., while HIC built the remainder. First operation took place on September 27, 1892. HIC was financially unable to continue operation of the line which ran through an area of bleak, bare rock, difficult in the extreme as a site for homes although it provided an excellent view of the lake and the harbor. DSR and HIC entered into an agreement effective October 3, 1892, whereby DSR agreed to operate, maintain, repair and renew the line. The agreement stated that HIC had constructed and partially equipped a single track line connecting with DSR's line at Highland Ave. and Winter St. in Duluth Heights, which extended to the intersection of Highland Ave. and Linden St. in Duluth Heights. DSR agreed to operate and maintain HIC's line in conjunction with DSR's line on Highland Ave. in the City of Duluth from the Station House on 8th St. to Highland Ave. and Winter St. DSR was to provide the necessary cars to maintain service. HIC was to reimburse DSR for the actual cost of operation and maintenance reduced by the fares collected.

Apparently HIC's financial difficulties continued. By an agreement dated April 21, 1893, HIC through a stock transfer and other consideration, deeded to DSR that portion of the line built by HIC. A bill of sale dated June 12, 1894, transferred all of HIC's property to DSR; this included: the carhouse situated at Duluth Heights; one open double truck electric car; ties and poles used in building of the Highland Ave. line from DSR's powerhouse on 7th Ave. W. to the north end of the line in block 15 of Duluth Heights Sixth Division; and right-of-way privileges through and upon the property of HIC.

This had been a summer-only operation from 1892 to 1894.

LAKESIDE RY. CO.

This company was incorporated in June, 1892, by Daniel Cash (President), Wm. C. Sargent (Secretary), C.H. Graves, J.N. Currie, and G.F. Chester as an adjunct to the Lakeside Land Co. for the purpose of building a streetcar line from the end of DSR's "East End" line to the City of Lakeside (later a part of the City of Duluth) to promote the sale of real estate in Lakeside. The company received a franchise from the City of Lakeside July 11, 1892, which, among other requirements, called for 15 minute service to be operated between 6:00 A.M. and 7:00 P.M. from 5th Ave. W. and Superior St. in Duluth to Park Ave. in Lakeside. LR entered into an agreement with DSR dated September 1, 1892, whereby LR was to construct a double track line from 22nd Ave. E. and Superior St. (DSR granted LR the right to construct track and overhead on Superior St. within Duluth) to Park Ave. in the Lester Park Fourth Division, according to plans and specifications furnished by DSR and under the supervision of and to the satisfaction of DSR. LR was to furnish sufficient cars and pay DSR for DSR's actual cost of operating, maintaining, repairing and renewing the line and equipment; fares collected were to be credited against the cost of operation.

The line as built consisted of double track on Superior St. from 22nd Ave. E. to 45th or 47th Ave. E., with single track from there to the end of the line at 61st Ave. E.; a passing siding was located at 54th Ave. E. on the single track portion. LR purchased six single truck, closed passenger motor cars from DSR and the formal opening took place December 17, 1892, when three cars began operating from the Spaulding Hotel in Duluth to Lakeside. The competing short line railroad passenger service operated by the Duluth & Iron Range R.R. was eventually discontinued due to the amount of traffic which switched over to the streetcars.

LR and DSR got into a dispute as to whose responsibility it was to construct vestibules on LR's 6 cars due to the passage of the "vestibule law" by the Minnesota legislature in 1893. LR either had to vestibule its cars or rent vestibuled cars in the winter months. LR rented vestibuled cars from DSR each winter (November through March) from November 1, 1894, through December 31, 1897. DSR was vestibuling LR cars in October and November, 1897, and finished the work in December, 1898.

LR's tracks gradually deteriorated to a poor condition as it was unable to afford proper maintenance; revenue from fares collected did not cover DSR's cost of operation plus minimal maintenance. In April, 1897, DSR complained to LR's management about the track being in very

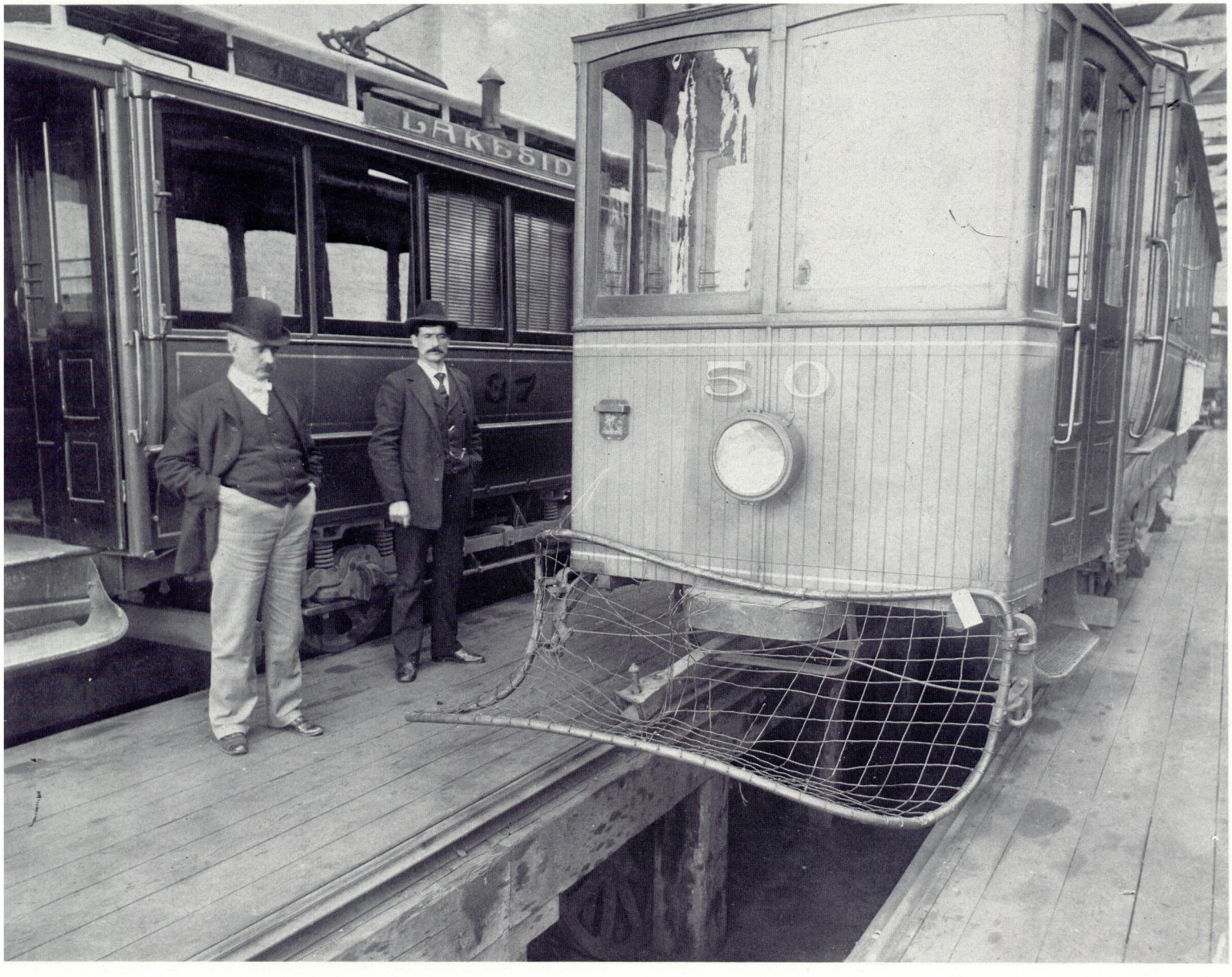
bad shape, especially the switches at 47th Ave. E. and 54th Ave. E.

LR also began disputing the "actual cost" DSR was charging them for operation of the line. The matter was under arbitration in November, 1897, and finally ended in court. The case was concluded June 9, 1898, and judgement entered March 29, 1899, against DSR in the amount of $13,776.07 plus interest, which amount constituted overcharges for operation of the line.

On June 22, 1899, LR offered the physical property to whomever would assume payment of the bonds due for construction of the line. DSR was in receivership and apparently not in any financial condition to respond to the offer. However after DSR emerged from receivership in August, 1900, DSR management under Thomas Lowry decided to pay off the bonds. At LR's board of directors meeting on August 28, 1900, the officers and directors resigned and new officers and directors were elected: Luther Mendenhall (President and Treasurer), C.G. Goodrich, G.G. Hartley (Vice President and Secretary), Thomas Lowry and Marcus D. Munn.

The 5% first mortgage bonds in the amount of $50,000 were cancelled as DSR had redeemed them in exchange for a deed to the property. The bill of sale was dated September 1, 1900, and included: track, overhead poles and wires from 22nd Ave. E. and Superior St., on Superior St., Oxford St. (later Superior St.), and Grand Ave. (later Superior St.) to 61st Ave. E. and Grand Ave.; and all cars and motors.

Two company officials sadly examine the damage to car 50's fender. Car 37 at the left is signed for the "Lakeside" line. Taken about 1900 in the Duluth carhouse. (DSR; Wayne C. Olsen collection)



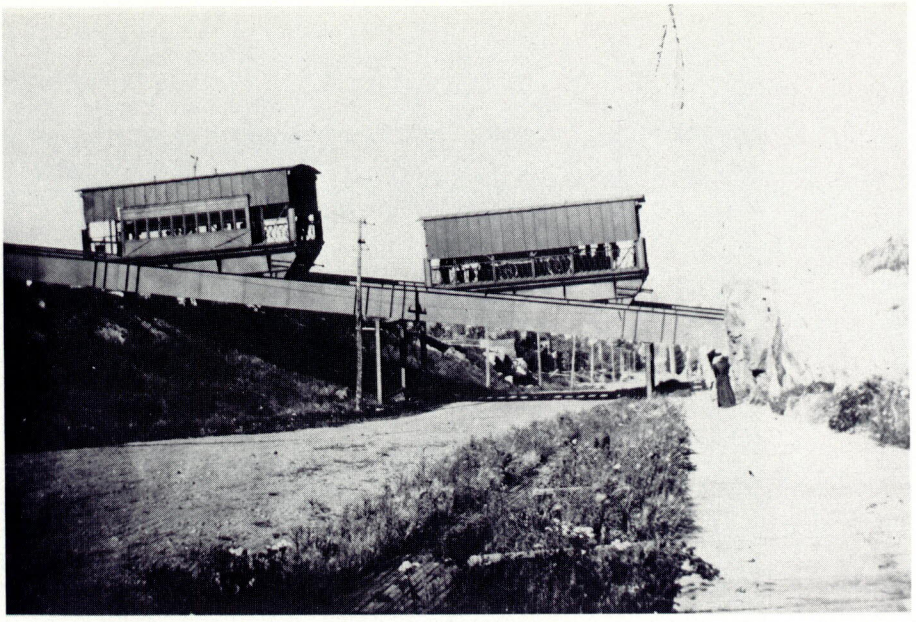
Incline Railway

The incline railway at 7th Ave. W. was designed by Samuel Diescher of Pittsburgh, Penna., and built by the Keystone Bridge Co. The line was .563 miles long, double track, (1.13 miles of track, using 66 lb. T rail) and rose 509 feet in the half-mile distance. The steel structure placement was completed October 6, 1891. One week later the permit was granted for construction of the steam powerhouse at the top of the incline. The powerhouse building was two stories high, measured 37' x 140', and constructed of stone and iron with a wood floor and roof. One E.P. Allis 26" x 30" non-condensing Corliss engine and one Babcock and Wilcox 192 h.p. water-tube boiler were installed to operate the hoisting drum. The two very large cars were designed to carry a four-horse team and wagon in addition to the passengers that were accomodated in an enclosed cabin at one side of the platform. The entire platform of each car was enclosed by corrugated metal sides and roof attached to a steel framework. Each body was 15' wide, 14' high (16½' high over the roof), 41' long; and mounted on a 27' long steel chassis equipped with eight 33" diameter wheels set to a gauge of 10'0". Each car complete weighed 27 tons, and was connected to a 1⅝" diameter steel cable which passed around a drum on a shaft of the hoisting engine in the powerhouse at the top of the incline. One car would ascend while the other was descending, controlled by an engineer from a control room in the powerhouse (overlooking the tracks) in which were placed the levers which controlled the hoisting engine and brakes. When the powerhouse and hoisting equipment were completed the first trial run was made, taking place November 4, 1891. 16 minutes was required to make the ascent. Test runs with both cars were made November 29, 1891, and operations on a regular schedule began December 2, 1891. The total cost of the incline railway, including the cars, amounted to $400,000. The powerhouse machinery was rebuilt during 1893, by the E.P. Allis Co., Milwaukee, at which time a second E.P. Allis 26" x 30" non-condensing Corliss engine and another Babcock & Wilcox 192 h.p. water-tube boiler were installed.

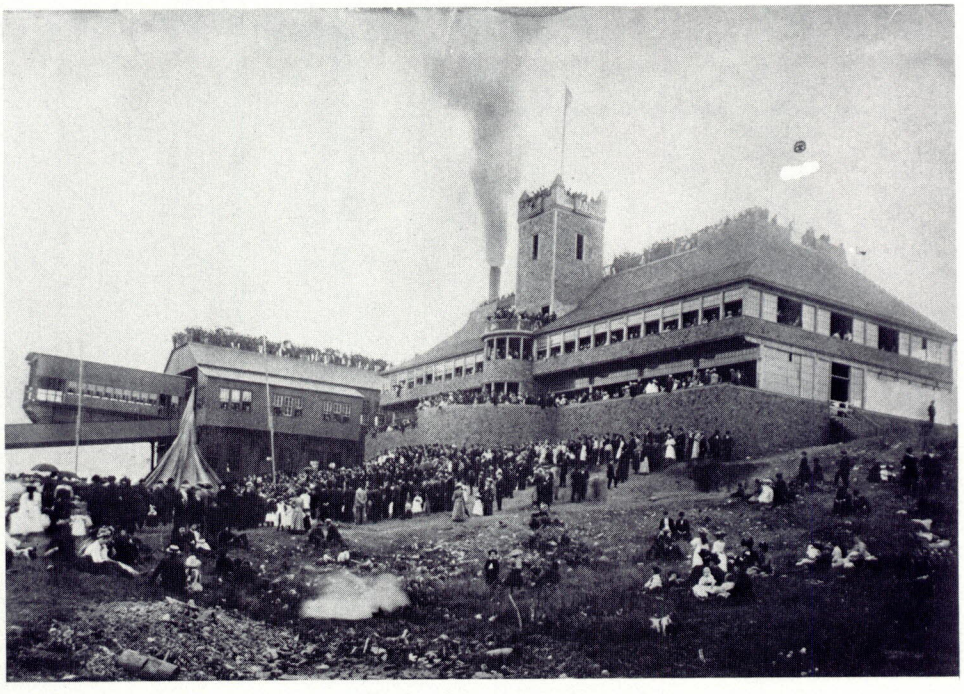
DSR quickly came to realize that it would be difficult to realize sufficient revenue from the area at the top of the incline and proceeded to build a large pavilion adjacent to the powerhouse, with the hope that concerts, shows and other events would stimulate patronage. This building was two stories high, measured 130' x 150', and was of frame construction. The first floor contained a restaurant and privilege space, while the second floor contained a theater seating 1200 persons. "Beacon Hill" was opened July 4, 1892, with a total attendance of 16,000 persons. It was used principally for afternoon concerts, vaudeville performances, parties and dances. The evening amusement attendance averaged 1,000 persons nightly, while Sunday and holiday attendances ranged from 3,000 to 5,000 persons daily. During the first two years of operation it was very popular. Then interest began to lessen somewhat so beginning in 1895 DSR leased the building to outside parties to operate. It was used primarily as a summer theater by acting companies whose circuit included Minneapolis (Lake Harriet), St. Paul, Milwaukee, Kansas City, Des Moines, Davenport (Iowa), and Grand Rapids (Mich.) as well as Duluth. The site was always popular with tourists and excursions.

About 7:30 A.M., May 28, 1901, a fire was discovered in a coal bin in the powerhouse engine-room. A fire alarm was turned in while water from a 10,000 gallon storage tank at the pavilion was used to fight the fire. A fire truck was sent up on one of the incline cars at 7:45 by which time the fire had spread through the powerhouse. The firemen had started to get the fire under control when wind carried the flames into the pavilion; the wooden structure was dry and started burning with phenomenal rapidity. The flames soon cut off the water supply and as nothing more could be done, all hope of saving both buildings was abandoned. The fires in the boilers in the powerhouse were banked and the incline car lashed to the rails on the steel structure with cables and chains. However the heat grew to such an intensity that the cables were melted and the rails twisted, breaking the chains. The 27 ton incline car, its interior in flames, raced wildly down the incline, crashing into the solid masonry wall of the station at the foot of the incline on Superior St. The chassis stayed on the track, but the body disintegrated, scattering flaming wreckage high into the air in all directions, smashing the station in the process. Superior St. was covered with burning wreckage and some debris was found in the railroad yards two blocks below the foot of the incline railway. No one was injured as it had been evident to police at the scene what might happen so traffic was stopped and the area cleared of people. By 8:30 A.M. both powerhouse and pavilion had burned to the ground and the one incline car destroyed. (The two steam hoisting engines were salvaged and shipped to a new owner in Hamilton, Ontario, in December, 1902, for additional service.)

Milton H. Bronsdon of Providence, R.I., was engaged to design the reconstruction of the railway, using a self-propelled electric car on the west track and a counterweight car on the east track. Rebuilding began Sept. 14, 1901. An overhead trolley wire was erected over the west track, and the grade was changed on 170' of track immediately above Superior St. Stations were constructed at Superior St., 4th St., 5th St. and the Boulevard (7th St.). The passenger car and counterweight truck were built by the Twin City Rapid Transit Co.'s 31st St. Shops in Minneapolis, and were unloaded November 26, 1901, at the N. P. Ry. connection at 37th Ave. W. and Superior St. This car was equipped with four traction motors, with a 1" diameter steel cable running from the forward end of the car over carrier sheaves between the rails, around large sheaves at the top of the incline, then down the



The original incline railway cars that were used from 1891 to 1901.

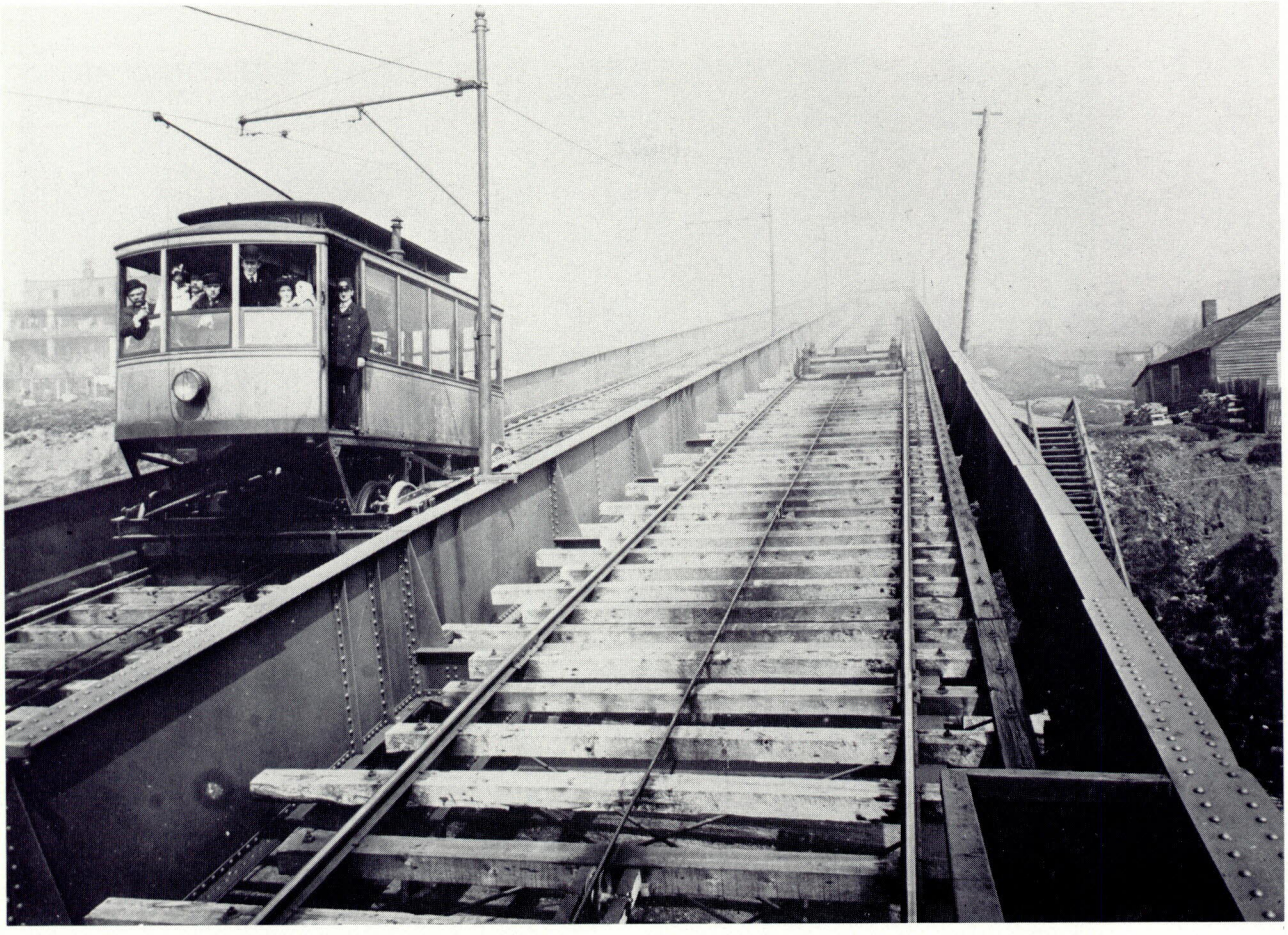


A photograph of the pavilion at the top of the incline railway taken in 1893 at the occasion of a balloon ascension; the deflated balloon can be seen by the incline car at the station.

Wreckage of the incline car and station strewn across Superior St. and 7th Ave. W. after the runaway caused by the powerhouse-pavilion fire on May 28, 1901.

(All photographs Wayne C. Olsen collection)

Looking downgrade at the incline railway structure as it appeared during 1901 to 1911. Note the intermediate station platform built over the east track. (DSR; Wayne C. Olsen collection)



Incline railway car 163 (later re-numbered 63) built for DSR by TCRT in 1901. The counterweight truck can be seen on the east (right) track. (DSR; Wayne C. Olsen collection)

opposite track over carrier sheaves between the rails to the forward end of the counterweight, which was merely a truck carrying a large casting balancing the weight of the passenger car on the other track. The passenger car and the counterweight truck were also connected with a steel "tail" cable running to the bottom of the incline and around a sheave on a tension carriage. The passenger car was equipped with ordinary wheel brakes and in addition a grip brake, through which a large stationary cable passed. This grip brake was set automatically when the car reached a pre-determined speed by means of a device which was operated by another small stationary cable. While the car was capable of a speed of 12 m.p.h., it was found that this speed was disagreeable to the passengers as it made them nervous on the steep grade; the top speed was thus limited to 8 m.p.h. with the schedule speed set at 6 m.p.h. The first regular operation on the reconstructed line began January 1, 1902.

The single car soon proved inadequate to handle the traffic so during 1910 DSR collaborated with TCRT on the design of two larger cars and revised hoisting equipment. The entire installation was designed by Walter J. Smith, TCRT's Master Mechanic, who was DSR's Master Mechanic and in charge of the incline construction during 1901. After delays brought about by a great burden of work, the TCRT Snelling Shops in St. Paul were finally able to complete the two cars and hoisting equipment during January, February and March, 1911. Rebuilding of the incline railway began March 18, 1911, with completion two months later. The four existing intermediate stations were removed and five new stations built so as to accommodate cars on each track; they were located at (1) Mesaba Ave. (W. 2nd St.), (2) W. 3rd St., (3) W. 4th St., (4) between W. 5th and W. 6th St., and (5) between W. 6th and W. 7th St. (The location of the stations had to be arranged so both cars would stop simultaneously at a station.) (Entrance to the stations was by stairway leading upward between the two tracks.) (In later years two additional intermediate stations were constructed.) At the foot and top of the incline large planked platforms were built at the stations. Overhead trolley wire was erected over the east track as the new cars were equipped with trolley poles to collect electricity for lighting, heating, and operating the air compressor for the air brakes. At the top of the incline an electric hoisting station and operator's cab were constructed. The hoisting equipment consisted of two General Electric 213 motors (50 h.p. each), one K-37 controller with "dead man" handle, and one General Electric CP-21 air compressor and air brake equipment. The electric traction motors were back-geared to two 48"

The incline railway after the 1911 rebuilding. This photograph was probably taken about 1912-1913. (DSR; Wayne C. Olsen collection)

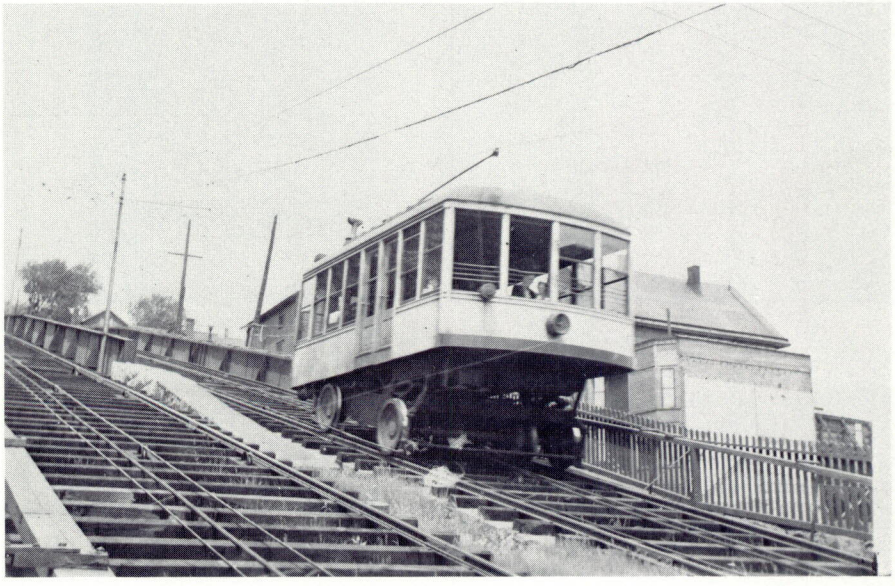
diameter cast-iron power-cable drums equipped with brake bands operated by compressed air. Several automatic safety devices were installed on the hoist, including the special controller handle. (The electric motors were later replaced with two General Electric 210 motors (70 h.p. each) and in June, 1930, Simplex safety equipment was installed on the controller.) The system of sheaves comprised four 105" diameter sheaves, 224 12" diameter cast-iron sheaves, four 32½" diameter sheaves, and three 54" diameter sheaves. A cable tension sheave house was built at the lower end of the incline just below 1st St. containing the tension carriage with counterweights. The cable system consisted of 6600' of 1" diameter pulling and "tail" cable, two 2971' safety cables (one of 1½" diameter on the west track and one of 1" diameter on the east track), and 6380' of ⅝" diameter cable for the automatic brake. Each car was equipped with hand brakes, air-operated wheel brakes, air-operated grip brakes, and automatic grip brakes. The pulling cable ran from the forward end of one car over carrier sheaves between the rails to the power drums at the top, and then down the opposite track over carrier sheaves between the rails to the forward end of the other car. Both cars were also connected by a tail cable running to the foot of the incline and around a sheave on a tension carriage to prevent the cars from surging. The safety cables (one for each track) were securely fastened at the top of the incline, passing through the grip brake on each car; the grip brake would be automatically set when the cars reached a predetermined speed by means of a device operated by the automatic brake cable fastened at the top of the incline and extending the full length of the line, one on each track. 2749.9 ft. of the line was on steel trestles and 221.4 ft. on masonry foundation, the total length of the line being 2971.3 ft. Minimum grade was about 15% and maximum grade about 25%. The incline railway was closed to traffic the evening of May 14, 1911; the rebuilding was completed June 9, 1911, and the new cars and

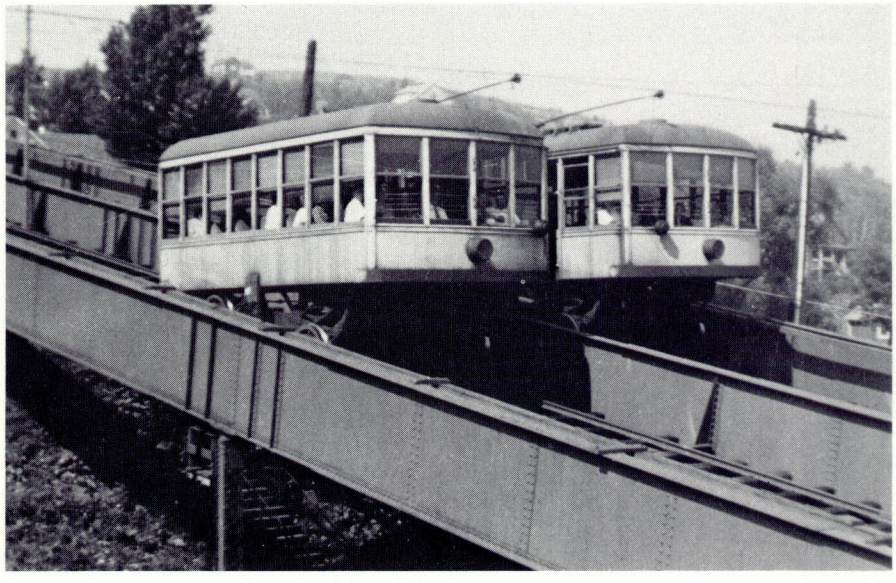
Right: A later view of an incline railway car showing the truck detail. (Byron D. Olsen collection)

Below left: An early photograph of a car leaving the station at the top of the incline railway. Note the trolley is mounted on the car centerline.

Below right: The two incline railway cars stopping at the intermediate station mid-point on the structure. The trolleys have by this time been moved off-center.

(Both photographs Wayne C. Olsen collection)





Above left and right: Two views of the interior of the east incline car looking south (downgrade), June 10, 1913. (DSR)

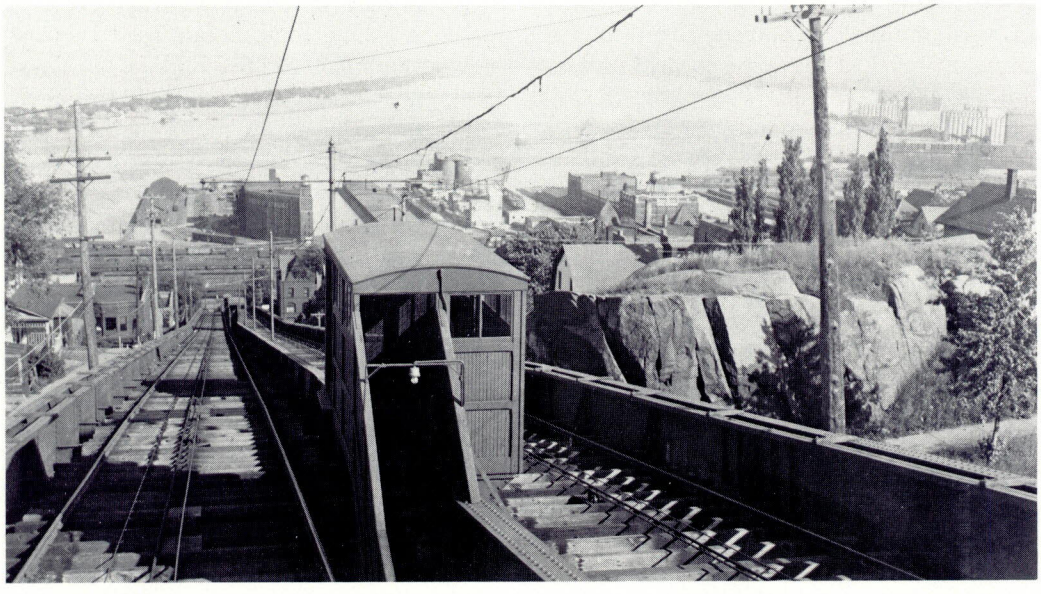
Right: The station at the bottom of the incline railway on Superior St. in April, 1915. (McKenzie Studios)

(All photographs Wayne C. Olsen collection)

machinery placed in regular operation on June 10, 1911.

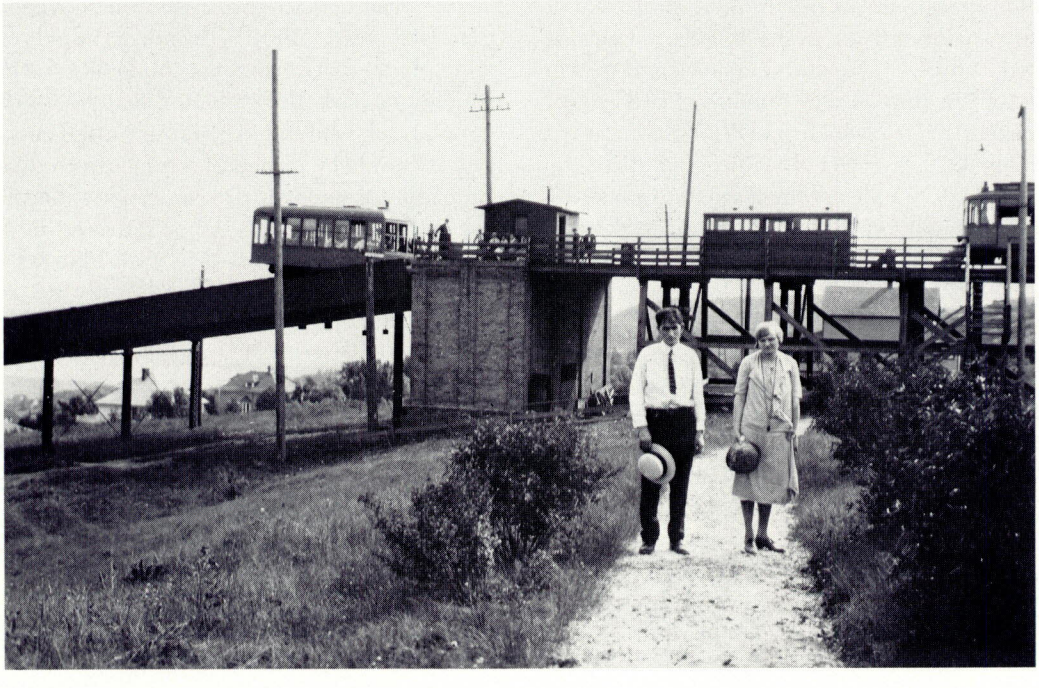
The electric hoist at the top of the incline, under the operation of an engineer, controlled the pulling cable which moved the cars at a speed of 6 m.p.h. An indicating dial in the incline cab showed the position of each car. A conductor on each car operated the air brakes, opened and closed the car doors, issued and received transfers, collected fares and made change, and finally notified the incline engineer by telephone when his car was ready to move, all of this at each station stop. The incline engineer would not operate the hoisting equipment until the telephone communications "East car clear" and "West car clear" had been received.

Fifteen minute service was provided, each car making one round trip every thirty minutes. Running time for a one-way trip was eight minutes. This operation continued without accident until the incline railway was abandoned on Labor Day, September 4, 1939, the last run being the 5:35 P.M. trip. The incline structure was entirely removed by December 1, 1939.



Above: An intermediate station on the incline railway structure in May, 1938. (Herman Rinke)

Below: The station and hoisting engineer's cab at the top of the incline railway. A "Highland Ave." line car can be seen to the right. The trestle and platform occupy the site of the original powerhouse. Taken August 1, 1926. (Joe Hutchinson collection)



PARK POINT TRACTION CO.

The Duluth harbor is formed by a narrow strip of land extending across the western end of Lake Superior. This sand bar, only 400 to 600 ft. wide, extends for 7 miles from the Minnesota to the Wisconsin shore, and is known as Minnesota Point. About 3 miles of it, extending from the Duluth shore, is built up with a variety of residences. This settled portion, the village of Park Point, was cut off from the city proper by the harbor entrance, a ship canal which had been cut through in 1871. The village was so narrow that only one street could be laid out, the surface of which was beach sand, loose and shifting, and offering no foundation for horse-team travel. Thus some form of public transportation was needed.

The Park Point St. Ry. was incorporated in December, 1886, by E.R. Jefferson, T.C. Himebaugh, D.S. Blanchard, W.E. Richardson and E.G. Johnson (Hudson, Wis.), but no actual construction was undertaken.

The Minnesota Point St. Ry. was incorporated in April, 1887, by John J. Hibbard (President), Rufus J. Edson (Vice President), Wallace Warner (Secretary), Reginald W. Petre, Alexander MacDougall, Bernard Silberstein, Roswell H. Palmer and W.C. Howenstein. A franchise from the village was obtained in July, 1887, but it wasn't until December, 1888, that the company had succeeded in completing 1.25 miles of 3'6" gauge horse car track. The company, already plagued with the problem of drifting sand, requested help from the village in solving the problem so operations could begin. However the village was unhappy with the company as it felt the terms of the franchise had not been complied with and ordered operations to begin on or before January 7, 1889. Petitions from the company and citizen groups requested extension of the deadline until May 15, 1889, because of the winter weather; this was granted by the village council. Apparently no regular operation was undertaken until 1890 or 1891. The company is not listed in the 1890 U.S. Census. MPSR acquired Duluth St. Ry. horse cars #4 and #14 in August, 1890, and in June, 1891, purchased 6183 lineal feet (3092 track feet) of 30 lb. rail from DSR's old horse car line on Superior St. The 1891 SRJ directory lists the company as owning 4.25 miles of track (45 lb. tram and T rail), five horse cars and twelve horses. Additional horse cars were acquired from DSR in December, 1891, (#1) and May, 1892 (#5, #7, #10 and #13). Subsequent directories list the following: 1892, 3.75 miles of track; and 1893, 3.50 miles of track and 8 horse cars.

The horse cars were operated during the spring, summer, and fall months only; no winter operations were attempted.

In May, 1896, control of the company passed from local people to eastern interests through the sale of a portion of the capital stock. However financial difficulties created by cost of removing drifting sand in the summer, no winter operation due to deep snow, and low traffic potential resulted in the sale of the company at public auction held March 19, 1898, at the company's carhouse. The successful bidder was Robert R. Dunn, a St. Paul broker, who bid $7,000.

A new company was formed with the impressive name of Interstate Traction Co.; A.W. Hartman was General Manager. Operations began for the season April 23, 1898. In November, 1898, plans for improvements were announced, including electrification of the line. In early May, 1899, it was reported that the line was being electrified to 4'8½" gauge, single track (35 lb. rail) with several long sidings; equipment was to consist of four passenger motor cars and two trailers. On Tuesday, June 20, 1899, the newspaper stated that the new electric cars would probably run the following Saturday; the line had been completed from 7th St. and Lake Ave. (at the ship canal), on Lake Ave. and Minnesota Ave. to Oatka Beach at 39th St. It was also reported that a third rail had been installed to permit use of the old 3'6" gauge horse cars if necessary. (An old photographic postcard indicates that during electrification the 3'6" gauge horse car track was side by side with the 4'8½" gauge electric track; this permitted un-interrupted horse car operation while the electrification was undertaken.) Electricity was purchased from the Commercial Light & Power Co.'s Duluth station. Four new, single truck, closed passenger motor cars, 1-4, were received from the LaClede Car Co., St. Louis, Mo., in May, 1899.

In January, 1900, it was announced that a depot was to be built at the end of the line and arrangements were being made for construction of a hotel and pavilion at 39th St. On March 21, 1900, it was reported that two long sidings had been installed, the pavilion at Oatka Beach was scheduled for completion on May 1st, and that two open passenger trailers had been acquired from DSR. Service resumed for the season on April 1, 1900.

In late April, 1901, additional improvements were being planned. The grove at the end of the line was to be made into a park, the system of switches at the end of the line was to be extended, and new open cars (motors and trailers) would be placed in service. In October, 1901, the company was reporting on methods it had developed to reduce the considerable labor required in clearing sand from two cuts which filled in with high winds.

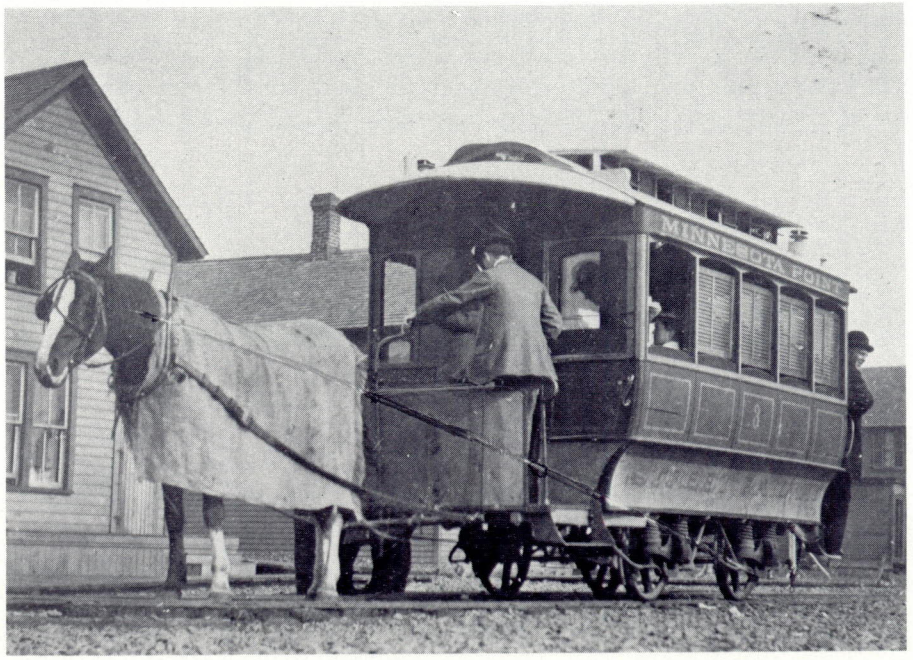
The May 28, 1902, newspaper reported that the Oatka Beach pavilion was to be formally re-opened with ITC its new owner. Two more cars had been purchased from DSR, one open passenger motor car and one open trailer. This gave the company a total of eight cars: four single truck, closed passenger motor cars, 1-4; one single truck, open passenger motor car, 5 (ex DSR 92 purchased 1902); and three single truck, open passenger trailers (ex DSR 91, 93 and 94); two were purchased in 1900 and one in 1902.

Above left and right: Two views of Minnesota Point St. Ry. horsecar operations in August, 1894. Scene at the left is at the north end of the line, while that on the right is at the south end. Note the plank walkway between the rails necessary to provide a sure footing for the horses.

Below left: Minnesota Point St. Ry. horsecar 3 in the 1890's.

Below right: Interstate Traction Co. closed motor car 4 with an open trailer, and open motor car 5 at the 43rd St. end of the line.

(All photographs Wayne C. Olsen collection)



An example of the type of patronage enjoyed by the company occurred on the evening of June 25, 1902, when it was reported that 350 people were carried to a dance party at the Oatka Beach pavilion in addition to a large number of campers and about 150 persons from W. Superior. The activities at Oatka Beach consisted of the pavilion (dance hall), beach, boating facilities (Oatka branch of the Duluth Boat Club) and camping. A public roadway did not exist south of 12th St. so ITC enjoyed the distinction of being the sole mode of transportation.

In August, 1902, ITC purchased a tract of land for $32,000 and announced it would install water and sewer lines and make the property available for summer homes. According to the 1902 U.S. Census: first main track was 3.03 miles, sidings .11 miles, and total track 3.14 miles, all laid with 30 lb. T rail; and equipment consisted of four open cars and four closed cars of which five were motor cars and three were trailers.

The first all-year operation may have started during the winter of 1903-1904. In 1899 the City of Duluth had begun ferry service across the ship canal to Park Point. In December, 1903, it was reported that one of the old Park Point streetcars (an old horse car?) had been bolted to the deck of the tugboat "Annie L. Smith" for use as a cabin while the tug acted as the ferry between Duluth and Park Point. In March, 1904, ice and snow crippled operations to the extent that dynamite had to be used to re-open the line.

In May, 1904, extension of the line from 39th St. to 43rd St., begun in 1903, was nearly complete.

During 1904 construction began on the Aerial Bridge, connecting Duluth and Park Point across the ship canal at Lake Ave. The bridge design was patterned after an existing structure in Rouen, France. The main structure was 34' wide by 393' long with a clear height above the water of 135'. A ferry car 34' wide by 50' long was suspended from the top of the main structure by steel girders, the entire assemblage running on rails fastened to the top of the main structure. The ferry car was electrically operated and capable of a speed of 4 m.p.h. with a capacity of 125,000 lbs. The completed bridge cost approximately $100,000 and was opened for traffic on February 23, 1905.

While there were no streetcar tracks on the Aerial Bridge ferry car, it was now the only all-weather connection with Duluth. Anticipating increased passenger traffic because of the bridge, ITC ordered two double truck, passenger motor cars from St. Louis Car Co. in October, 1904. The two cars arrived in Duluth on June 12, 1905.

They were named "Oatka" and "Aerial" (later numbered 10-11); measured 40'5" long over-all (29'4" long body with 5'6½" vestibuled platforms) and 8'4" wide; weighed 40,600 lbs; and were equipped with St. Louis Car Co. trucks (4'6" wheelbase), two General Electric 67 motors, and two K-10 controllers. The exterior was wine colored, while the interior finish was of oak with birds-eye maple ceiling and bronze fittings. "Oatka" toured the Duluth street railway system for exhibition purposes June 13th. On June 14th both cars were run across the Aerial Bridge, temporary tracks and trolley wire being installed by DSR on the ferry car and the bridge approaches.

The company announced in April, 1905, that work was to begin on double tracking the line. This work had been considered as far back as 1902. It was reported in October, 1906, that plans had been completed for double tracking the entire line; it was intended in the spring to build a second track from the ship canal to where the present double track left off. However the 1907 U.S. Census figures indicate the entire line was still single track at that time. The line was eventually double-tracked but just when the work was accomplished is uncertain.

On March 31, 1906, plans for construction of an amusement park, named "White City", by the Duluth Amusement Co. were nearly complete. This was located at the end of the line at 43rd St. Projected completion date of the facility was June 15, 1906.

To handle the amusement park traffic ITC acquired (1) three ex-Superior Rapid Transit Ry. single truck, closed passenger motor cars (#110, #117, #122) along with three K-2 controllers, and (2) six single truck, open passenger trailers from the St. Paul City Ry. These were ex-cable trailers (with railroad roof) 221, 226, 229, and 239-241. DSR repaired and repainted the cars (Indian red with aluminum leaf lettering). All 9 cars were ferried across the Aerial Bridge in June.

ITC's carhouse (two tracks) was located on the west side of Pine St. (19th St.) and Minnesota Ave. With the acquisition of the additional cars a larger building and more trackage was needed. Construction started in May, 1906, on a new carhouse building on the east side of the same intersection. The existing building was to be retained for car storage purposes.

ITC began making a car available for funeral service in May, 1907. An even more unusual purpose was found for a streetcar that same year. Fire-fighting on the Point had proved a difficult problem for years. Even with the Aerial Bridge it took too long to cross the ship canal to respond in time to a fire alarm. The surface of what streets there were was of loose and shifting beach sand preventing vehicle travel. Water along the shore was too shallow to permit the use of a fireboat. Bucket brigades did what they could, which wasn't much. So a fire-fighting streetcar was developed. In May, 1907, ITC sold single-truck, open passenger motor car 5 (ex-DSR 92) to the City of Duluth. The seats were removed but the bracing was retained. A hose box was installed the whole width of the car; open at both ends, no matter which way the car was going the hose line could be carried from the hydrant to the fire. The equipment consisted of: a water pump (operated by an electric motor), 1500 ft. of 2½" hose, two shut-off nozzles, 20'-26'-30' ladders, 14' roof ladder, 6 axes, 4 pike-poles,

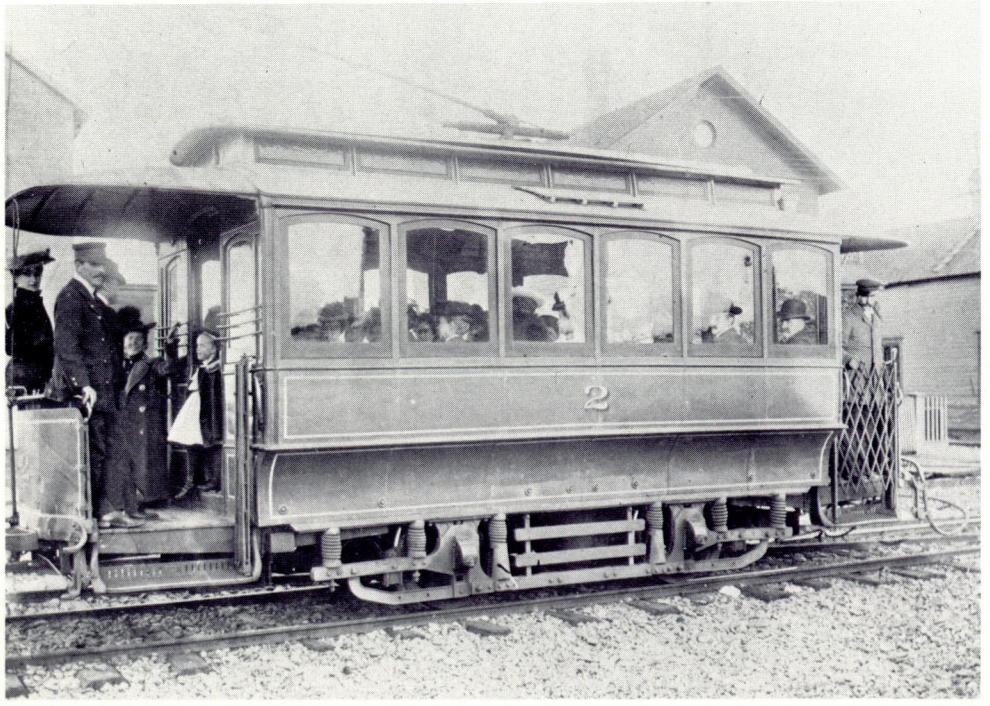
Above left: ITC closed motor car 4 at the 43rd St. end of the line.

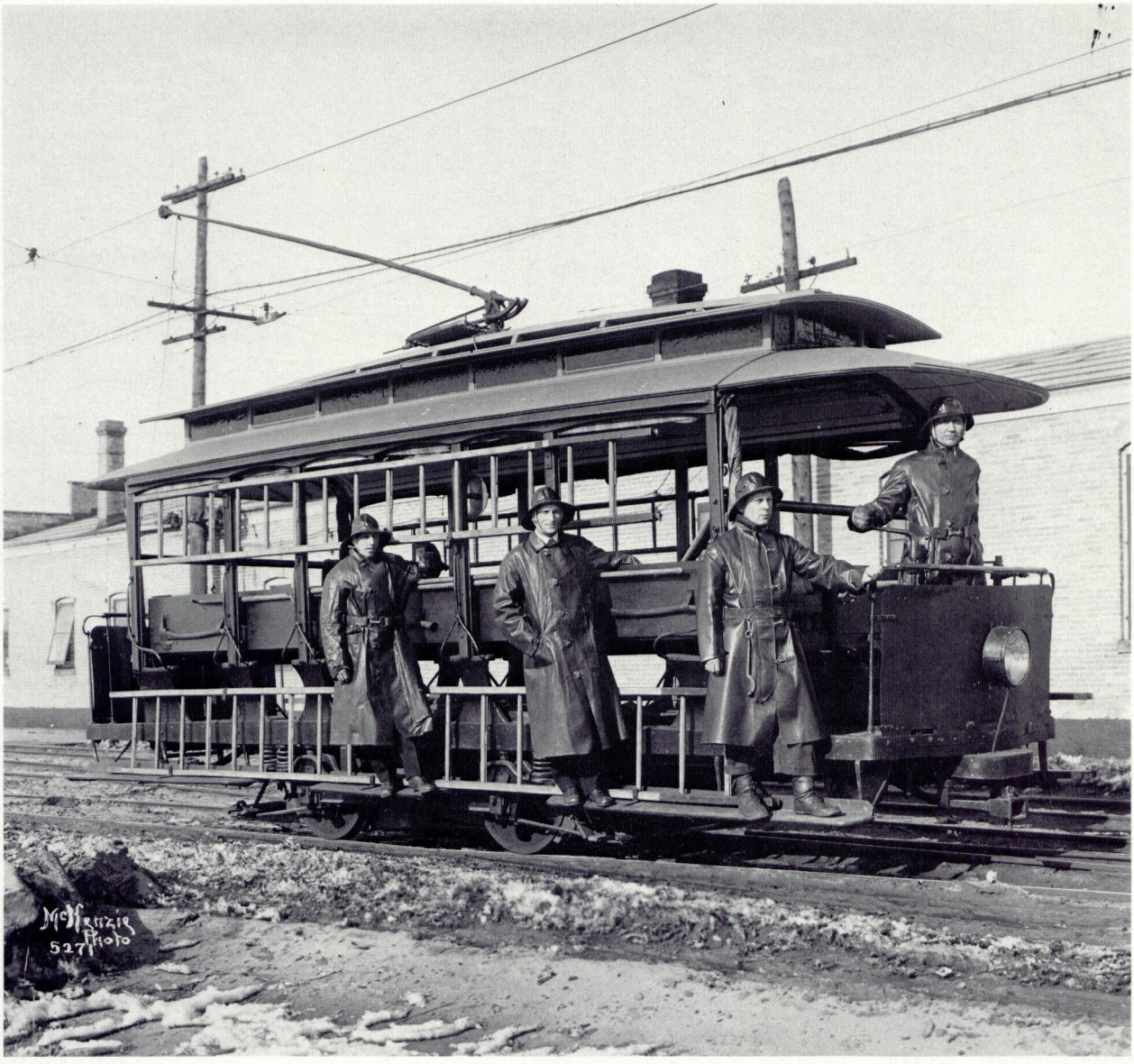
Below left: ITC closed motor car 2 at a passing siding on the north end of the line.

Above right: The Duluth approach to the Aerial Bridge showing the ferry car loading teams and passengers.

Below right: The new carhouse on the east side of Minnesota Ave. at 19th St. about 1907. Note the main line has been double-tracked. Open car 16 can be seen on a storage yard track to the left.

(All photographs Wayne C. Olsen collection)





The famous Park Point fire-fighting streetcar as it appeared in 1915. Motorman is PPTC employee John Nyberg; at his right is William Forsyth, fire chief. (McKenzie Studios; Wayne C. Olsen collection)

two 6-gallon Babcock extinguishers with extra charges, and rubber coats, boots and hats for the volunteer firemen. Under the agreement with ITC, effective July 2, 1907, the city agreed to pay the company $30 per month, for which the company would store the car in the old carhouse, maintain and repair the car, and furnish the motorman when a fire alarm was turned in.

W.W. Forsyth, a pipeman for the Duluth Fire Dept. who lived close by the carhouse, was appointed chief of the volunteer fire department on 24 hour duty. Fire alarms were turned in to his home by telephone. He would rush to the carhouse, get the motorman (usually the shop foreman), and with headlight on, automatic gong clanging, start down the tracks immediately. Volunteers were picked up along the way, alerted by the clanging of the gong on the car. Motormen of regular cars who met the fire car on the way to a fire were instructed to reverse direction quickly and proceed ahead of the car to the scene of the fire, assist at that point if necessary, or operate shuttle service during the time of interruption. When the alarm arrived at Duluth it was relayed to the nearest regularly organized company whose members responded without equipment; usually the volunteers would have checked the fire before they arrived.

Another service provided by the ITC was the transportation of coal, wood, furniture, groceries, supplies, etc. for the residents of the Point. Due to the lack of improved streets this was the most convenient method of having such commodities delivered. Two freight trailers were operated in this service. Loaded at the Aerial Bridge the trailers were pulled by the passenger motor cars and either left at the sidings or spotted on the track in front of homes. Residents unloaded their merchandise as quickly as possible so that the returning passenger car could return the freight trailer to the carhouse.

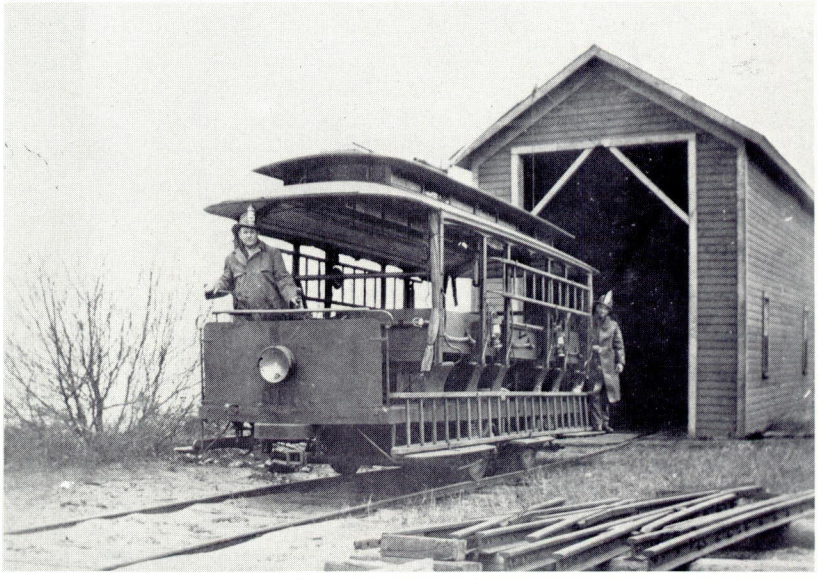
The 1907 U.S. Census figures were as follows: first main track 3.05 miles, sidings 0.11 miles, total track 3.16 miles, laid with 35 to 60 lb. T rail; equipment consisted of 18 passenger cars, 2 freight trailers and 1 snow plow for a total of 21 cars. 10 were motor cars (9 had two motors each) and 11 were trailers.

On May 1, 1908, new transfer arrangements with DSR became effective. The rate of fare on either company's line was 5 cents plus 2 cents for a transfer.

On May 6, 1908, the Duluth Amusement Co. which had operated the "White City" amusement park during 1906 and 1907 went into receivership. The company had debts in the amount of $19,000 from the 1907 season which could not be paid unless the property were sold. ITC obtained control on May 27th and announced the fence enclosing the grounds would be removed and the place converted into a park; amusement features would be retained but on a greatly reduced scale. ITC re-named the park "Joyland". However ITC was no more successful at making the operation profitable and it was announced in April, 1909, that the buildings were to be torn down and the lumber sold. Thus the dance hall at Oatka Beach would be the only pleasure place left and efforts were to be made to make it as popular as it had been before.

During 1910 the original carhouse building, which housed two tracks, was rebuilt so as to enclose only one track; the second track was then used for outside storage. The financial report for the year 1910 indicated that ITC carried 416,000 passengers; total income was $23,183 and total expenses were $21,947 for a net profit of $1,237. Electrical power was purchased from the Duluth Edison Electric Co. at 4,000 volts, 3 phase, 60 cycle, A.C. which operated a 300 h.p. electric motor. This motor was directly connected to a General Electric 348 ampere, 550 volt D.C. generator located in ITC's substation. The A.C. transmission line was carried over the top of the Aerial Bridge.

Passenger traffic continued to increase due to the popu-



Above left: ITC 11 after a May 1, 1909, snowfall pulling a freight trailer.

Above right: The original ITC two-track carhouse on the west side of Minnesota Ave. at 19th St.

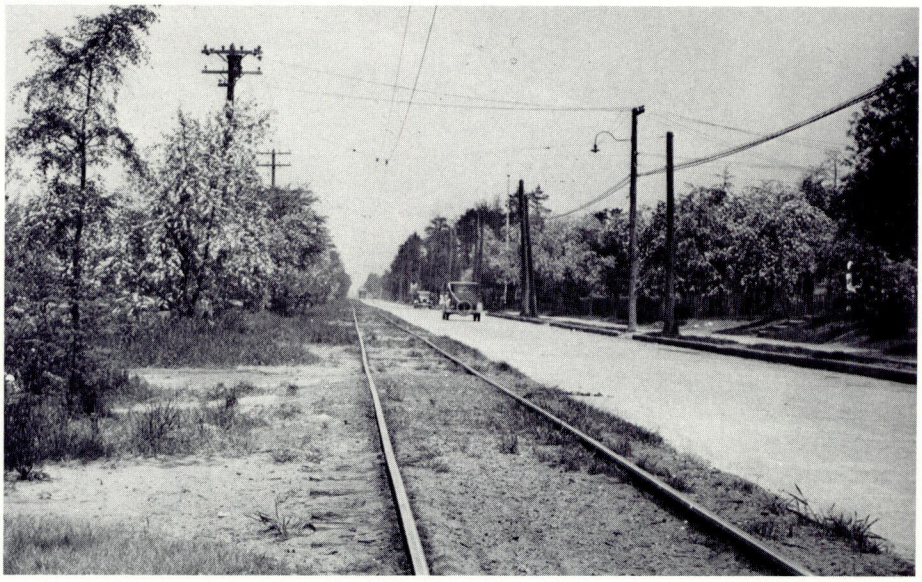
Right: The fire car at the old carhouse after the building had been rebuilt to one track capacity, and the second track (used for outside storage for several years) removed.

(All photographs Wayne C. Olsen collection)

Left: New ITC car 21 on the carhouse ladder track. A former St. Paul City Ry. open cable trailer is visible to the right.

Below: Track alongside Minnesota Ave. at 34th St., looking north, on June 16, 1927.

(Both photographs Wayne C. Olsen collection)



larity of the Point for summer homes and the many visitors to the Duluth Boat Club's Oatka facilities. ITC announced in March, 1911, that two new, double truck, passenger motor cars had been ordered from Danville Car Co., Danville, Illinois. Numbered 20 and 21, they measured 41'1" long over-all (28'11" long body with 6'1" long vestibuled platforms) and 8'4" wide; weighed 36,600 lbs., and were equipped with Brill 27G-1 trucks (4'6" wheelbase), two General Electric 67 motors, and two K-10 controllers. They arrived at the DSR shops on June 8, 1911, and were ferried across the Aerial Bridge a few days later.

Stockholders of ITC were Robert R. Dunn (St. Paul); A.W. Hartman (Treasurer and General Manager), O.C. Hartman, C.F. Hartman, F.W. Sullivan (all of Duluth); and H.O. Underwood (Boston). First mortgage bonds of the company were held chiefly by eastern capitalists and it was reported in February, 1913, that ITC would probably be taken over by its bondholders as it had been unable to meet interest payments on the bonds. During March, 1913, the company was re-organized as the Park Point Traction Co. Officers were: Robert R. Dunn (President), J.R. Crane (Treasurer and General Manager), and Oscar Mitchell (Vice President and Secretary). The 300 shares of capital stock were held principally by R.R. Dunn, A.W. Hartmann, and the Park Point Land Co. The value of the property at December 31, 1913, was $139,013 financed by $10,620 in first mortgage bonds and $99,681 in income bonds. The financial results for the year 1913 were not encouraging: income totaled $23,272 (passenger 91%, freight 8% and other 1%) while expenses totaled $23,441 (wages 41%, salaries 11%, power 15%, repairs and maintenance 26% and other 7%) for a net loss of $169.

As of April 15, 1914, the company owned 6.5 miles of track, 7 passenger motor cars, 7 other cars and 1 snow plow. Daily service was operated in the summertime from 6:00 A.M. to 12:10 A.M. at 20 minute intervals. (Winter service was operated at 40 minute intervals.) The financial results for the year 1914 showed that 426,613 passengers were carried, income totaled $24,271 (passenger 87%, freight 9%, fire car 1½% and other 2%) while expenses totaled $26,620 for a loss of $2,349.

The village of Park Point began a street paving program in 1914. Lake Ave. from the Aerial Bridge to 13th St. was completed that year forcing PPT to reduce double track to single track on that portion of the line because of paving costs. During 1915 the village proposed to pave Minnesota Ave. from 12th St. to 38th St. causing PPT to decide to convert the remainder of the line to single track with passing sidings. In June, 1915, a 600 ft. long passing track was installed on Minnesota Ave. before paving began. The newly-paved street was opened for automobile traffic September 27, 1915, providing a paved road from the Aerial Bridge to within a block of the Duluth Boat Club's Oatka branch facilities. Thus the only track on un-improved streets now consisted of that on Lake Ave. from 13th St. to 14th St. and on 14th St. from Lake Ave. to Minnesota Ave. Side-of-the-road trackage (with sidings at 14th St. and 37th St.) extended from 14th St. to 38th St. on Minnesota Ave. The total track mileage as of September 28, 1916, was reported as 3.6 miles. On July 20, 1916, it was announced that 10 minute service would be provided beginning the following Sunday as the sidings previously built were located specifically for that purpose. (Previously two cars had been run together during rush periods.) Block signals were also installed.

The financial reports indicated that PPT sustained net losses of $932 and $49 respectively during 1915 and 1916. An unusually heavy snow in early March, 1917, closed the line for nearly a week. The expense of opening the line combined with the loss of revenue, added to the company's financial woes. On July 1, 1917, DSR assumed operation of PPT and on September 1, 1917, formally acquired the property. A total of 3.8 miles of track was reported at the time of acquisition.

PPTC Snow Plow 12 at the 43rd St. end of the line fighting the type of blizzard which drained the company's meager treasury. Note the interior of the car is filled with snow. (Wayne C. Olsen collection)

INTRODUCTION TO FOLLOWING CHAPTERS

Now that the general history of each of the individual component companies has been related, the detailed history of the property, equipment and operations of the street railway is presented. First it is necessary to cover the early years of the Duluth and Superior systems before the various independent companies were acquired. The property and equipment acquired from the independents are then included from the date of acquisition onward.

2. TRACK AND OVERHEAD CONSTRUCTION

Duluth

The lone existing horsecar line was rebuilt to 4'8½" gauge double track and electrified during 1890. This track was located on Michigan St. and Superior St. from 28th Ave. W. and Superior St. to 22nd Ave. E. and Superior St. The first electric operation began November 8, 1890, from 24th Ave. W. to 8th Ave. E. Full electric operation from 28th Ave. W. to 22nd Ave. E. began December 21, 1890. The portion on Superior St. from 24th Ave. W. to 28th Ave. W. was single track and had been operated with horse cars from Nov. 8 to Dec. 21. 45 lb. Johnson girder rail was utilized in the reconstruction. Crossovers were installed at the ends of the line and at certain intermediate points; the electric cars were built for double end operation.

A completely new electric line, the "East 4th St." line, was constructed during 1890 and opened for service to 10th Ave. E. on December 2, and to 14th Ave. E. on December 21, 1890. This involved double track, utilizing 45 lb. Johnson girder rail, on 3rd Ave. W. from Superior St. to 2nd St. (involving an 8.7% grade), on 2nd St. from 3rd Ave. W. to 6th Ave. E., on 6th Ave. E. to E. 4th St., and single track on E. 4th St. to 14th Ave. E.

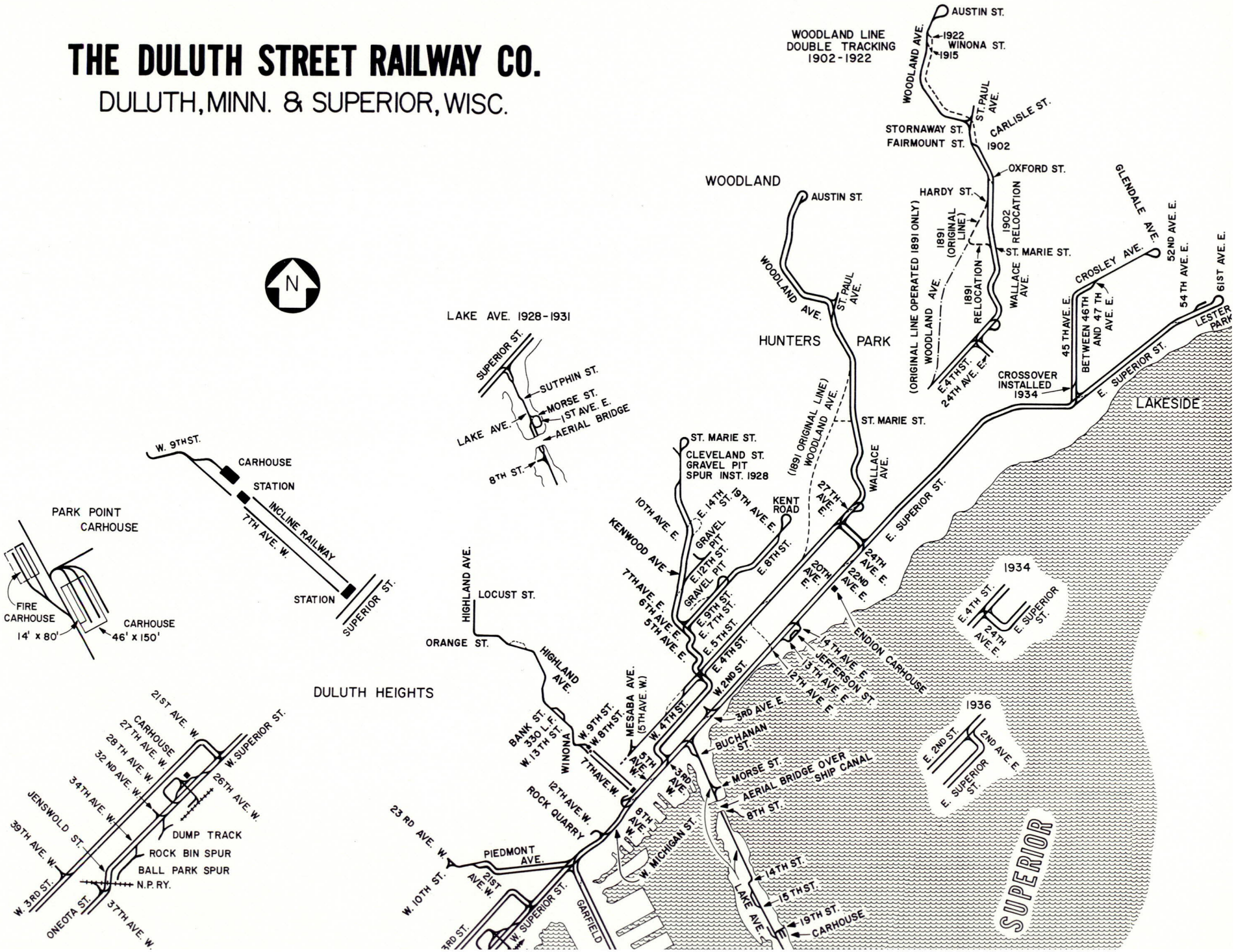
1891

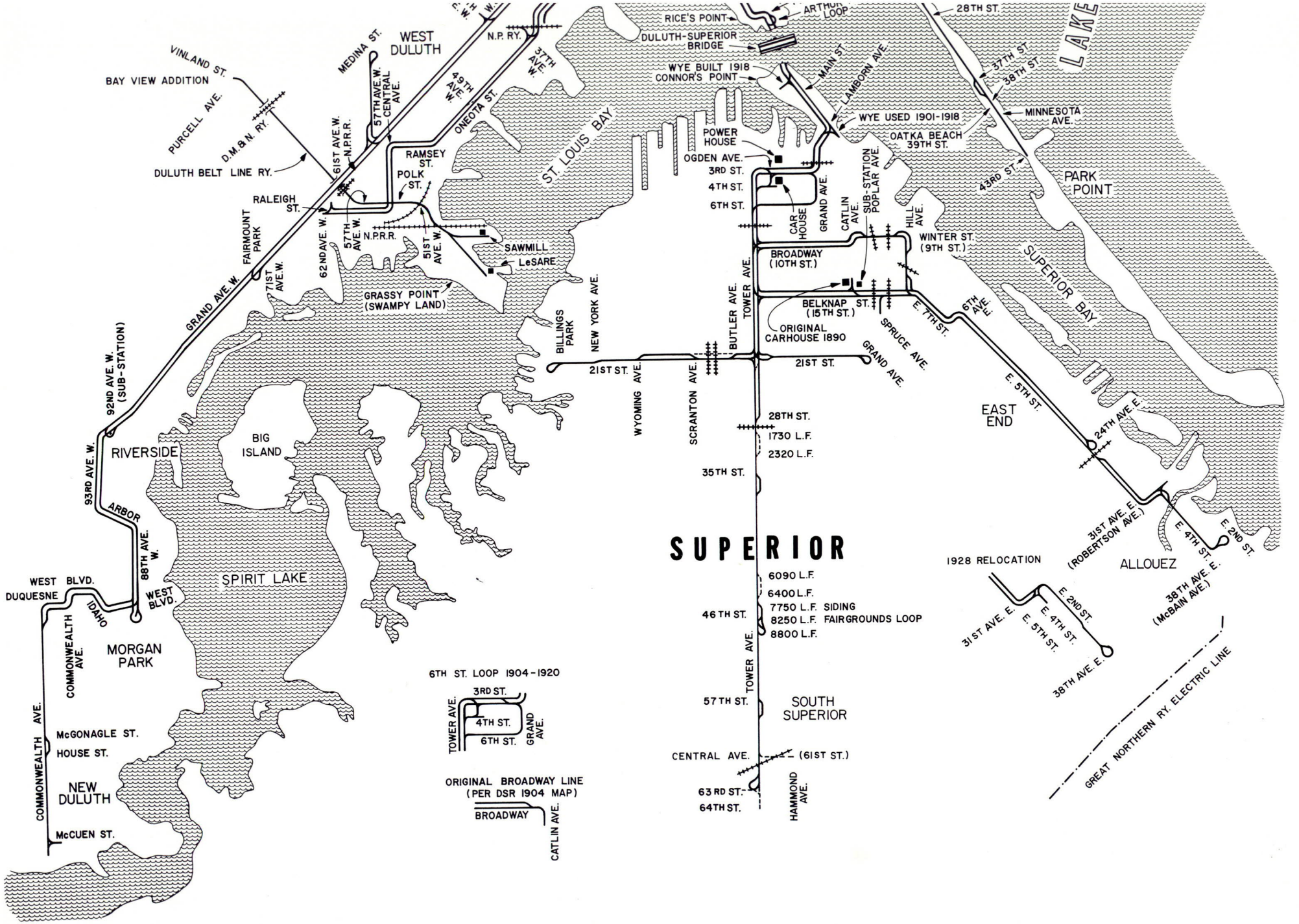
Single track was built on E. 4th St. from 14th Ave. E. to 20th Ave. E. by February. (Motor Line Improvement Co.'s Woodland line opened April 28th.) Single track was built on E. 4th St. from 20th Ave. E. to 27th Ave. E. during September and October.

The "West Duluth" line was completed in November or December. This consisted of double track from 28th Ave. W. and Superior St. on Superior St., Sutphin St. (Jenswold St.), Oneota St., Ramsey St. and Central Ave. to Central and Raleigh St.; and single track along the north side of Raleigh St. to 62nd Ave. W. 5¾" 60 lb. T rail was utilized in the construction.

THE DULUTH STREET RAILWAY CO.

DULUTH, MINN. & SUPERIOR, WISC.




WEST DULUTH
VINLAND ST.
BAY VIEW ADDITION
PURCELL AVE.
D.M.&N. RY.
DULUTH BELT LINE RY.
MEDINA ST.
N.P. RY.
57TH AVE.W. CENTRAL AVE.
49TH AVE.W.
37TH AVE.W.
ONEOTA ST.
61ST AVE.W. N.P.R.R.
RAMSEY ST.
POLK ST.
RALEIGH ST.
FAIRMOUNT PARK
57TH AVE.W.
N.P.R.R.
62ND AVE.W.
51ST AVE.W.
SAWMILL
LeSARE
GRASSY POINT (SWAMPY LAND)
71ST AVE.W.
GRAND AVE.W.
92ND AVE.W. (SUB-STATION)
93RD AVE.W.
RIVERSIDE
BIG ISLAND
ARBOR
88TH AVE.W.
WEST BLVD.
DUQUESNE
IDAHO
WEST BLVD.
SPIRIT LAKE
COMMONWEALTH AVE.
MORGAN PARK
McGONAGLE ST.
HOUSE ST.
NEW DULUTH
McCUEN ST.
COMMONWEALTH AVE.
RICE'S POINT
ARTHUR LOOP
DULUTH-SUPERIOR BRIDGE
WYE BUILT 1918
CONNOR'S POINT
MAIN ST.
LAMBORN AVE.
WYE USED 1901-1918
POWER HOUSE
OGDEN AVE.
3RD ST.
4TH ST.
6TH ST.
CAR HOUSE
GRAND AVE.
CATLIN AVE.
SUB-STATION POPLAR AVE.
HILL AVE.
ST. LOUIS BAY
BROADWAY (10TH ST.)
WINTER ST. (9TH ST.)
BELKNAP ST. (15TH ST.)
ORIGINAL CARHOUSE 1890
BILLINGS PARK
NEW YORK AVE.
BUTLER AVE.
TOWER AVE.
21ST ST.
WYOMING AVE.
SCRANTON AVE.
GRAND AVE.
SPRUCE AVE.
E. 7TH ST.
6TH AVE. E.
E. 5TH ST.
EAST END
28TH ST.
1730 L.F.
2320 L.F.
35TH ST.
SUPERIOR
6090 L.F.
6400 L.F.
7750 L.F. SIDING
8250 L.F. FAIRGROUNDS LOOP
8800 L.F.
46TH ST.
TOWER AVE.
57TH ST.
SOUTH SUPERIOR
CENTRAL AVE. (61ST ST.)
63RD ST.
64TH ST.
HAMMOND AVE.
6TH ST. LOOP 1904-1920
3RD ST.
4TH ST.
6TH ST.
TOWER AVE.
GRAND AVE.
ORIGINAL BROADWAY LINE (PER DSR 1904 MAP)
BROADWAY
CATLIN AVE.
SUPERIOR BAY
LAKE
28TH ST.
37TH ST.
38TH ST.
MINNESOTA AVE.
OATKA BEACH 39TH ST.
43RD ST.
PARK POINT
24TH AVE. E.
31ST AVE. E. (ROBERTSON AVE.)
E. 4TH ST.
E. 2ND ST.
ALLOUEZ
36TH AVE. E. (McBAIN AVE.)
1928 RELOCATION
31ST AVE. E.
E. 5TH ST.
E. 4TH ST.
E. 2ND ST.
38TH AVE. E.
GREAT NORTHERN RY. ELECTRIC LINE

1892

A line was built on Garfield Ave. from Michigan St. to the dock front on Rice's Point which was opened for service on September 25th. Much of this line was single track due to crossing at grade of numerous railroad tracks. Rice's Point was the closest land area to Superior, Wisconsin, and had become the center of much commercial activity: sawmills, railroad yards, grain handling, coal docks and other ship to shore facilities.

The "West 4th St." line was opened November 4th. This consisted of track on West 4th St. from 6th Ave. E. to 5th Ave. W. (Mesaba Ave.). Double track was built from 6th Ave. E. to Lake Ave. while the remainder was single track. The location of this line was ill-conceived, being the result of persistent demands upon DSR by pressure groups and the city council for a line on the central hillside.

A line was also built on Lake Ave. from Superior St. to the ship canal; double track from Superior St. to Buchanan St. with the remainder being single track. The date of opening is not known; the newspaper of November 9th reported the junction curves at Lake Ave. and Superior St. were being installed and nearing completion.

1893-1894

During the early part of 1893 second track was added on E. 4th St. from 14th Ave. E. to 27th Ave. E. The "Woodland" line utilized open trailers during the summer months and apparently the grade on 3rd Ave. W. was troublesome for the single truck motor cars pulling trailers. The city granted DSR during May, 1893, the right to build a single track on 12th Ave. E. between Superior St. and E. 4th St. for use by eastbound "Woodland" cars. Apparently this track was built during 1893 and used during the summer months. It was again used beginning May 1, 1894, but was discontinued May 19, 1894, and subsequently removed.

1895-1896

The "West 3rd St." line was constructed during the Fall, 1895, and Spring, 1896. This was all double track construction utilizing 60 lb. T rail built as follows: from 13th Ave. W. and Michigan St. to Superior St., on Superior St. to the intersection of Garfield Ave. and Piedmont Ave., on Piedmont Ave. to the intersection of 19th Ave. W. and W. 3rd St., and on W. 3rd St. to 40th Ave. W. (Collingwood Ave.). Regular operation as far as 37th Ave. W. began July 1, 1896. (An old map shows single track from 37th to 40th Ave. W.) The section on Piedmont Ave. was located to pacify the city council but required extremely difficult construction; the track was put through solid rock around the Point of Rocks and up a steep grade; the overhead poles also had to be set in rock.

1897

The Duluth-Superior Bridge was constructed over St. Louis Bay between Rice's Point, Duluth, and Connor's Point, Superior. Double streetcar tracks were laid on the bridge deck and the first test runs were made May 28, 1897. (The bridge was opened to foot traffic July 13th.) The "Garfield Ave." line was extended on Pine St., Arthur Ave., and across the bridge into Superior to the foot of the Superior approach to the bridge; re-named the "Interstate" line, the first regular operation across the bridge was begun September 1, 1897. About 600 feet of track on the original "Garfield Ave." line from Pine St. to the dock front on Rice's Point was then removed.

1899

To accomodate the first rebuilt, single end, single truck streetcars, wyes were installed at (1) Lake Ave. and Morse St., and (2) 62nd Ave. W. and Raleigh St. Both were completed July 1st.

The Ford Bacon & Davis report of March, 1900, listed the types of rail in use as: 35 lb. T, 45 lb. T, 45 lb. 4¼" girder, 56 lb. T, and 60 lb. 5¾" T rail.

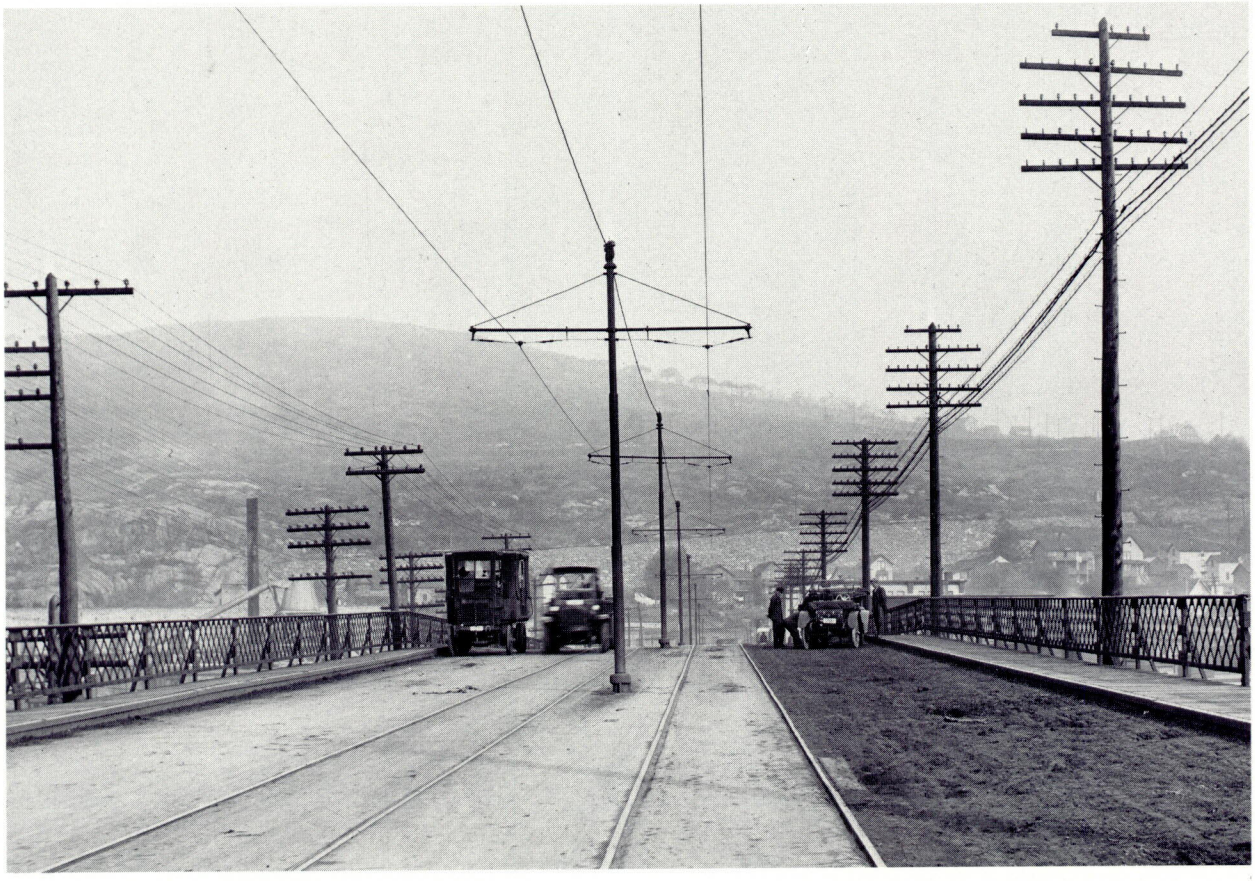
1901

In preparation for the operation of new double truck, single end streetcars, the following track work was installed: (1) a loop at Lester Park at the end of the "Lakeside" line (61st Ave. E. and Superior St.) in April, (2) a wye at 3rd Ave. E. and Superior St. (for "Interstate" line cars) during August, (3) a wye at 23rd Ave. E. and Superior St. (for "East End" line cars), and (4) a wye at 8th Ave. W. and Superior St. during August.

A 306.5 l.f. spur track was built into Northern Pacific Ry. property at 37th Ave. W. and Oneota St. northward to a connection with the Elliot Packing Plant spur track. Over this rail connection DSR received materials, supplies, and new streetcars from the builders. DSR records are unclear as to whether this track was built during 1901 or January, 1903. In 1906 necessary track was added to form a wye off Superior St.

1901-1902-1903

The crossing of 16 railroad tracks at grade on Garfield Ave. constituted a hazard as well as a nuisance to operations. The N.P. Ry. planned to build a bridge over its tracks as part of extensive changes at its Rice's Point facilities. In preparation for this work, extensive changes to DSR tracks in the vicinity were required. Preliminary work was begun in 1900. By Spring, 1901, tracks had been laid on Superior St. from 18th Ave. W. to Garfield Ave., thus eliminating trackage on Michigan St. and 18th Ave. W. The completed trackage was opened during Summer, 1901, and work then began on the new bridge. During April and May, 1902, double track was laid on the completed bridge, thus eliminating track on Michigan St. between 13th Ave. W. and 18th Ave. W. The net result was the reduction of grade crossings to five, all of which were limited-use dock access tracks. By August, 1903, double track had been completed over the entire length of Garfield Ave. which formerly had a considerable amount of single track.



Looking north on the Garfield Ave. viaduct, October 1, 1915. (DSR; Wayne C. Olsen collection)

1902

Center-poles-with-brackets were replaced by side-poles-with-span-wire construction on the E. 4th St. trackage during May.

Second track was added on Raleigh St. from Central Ave. to 62nd Ave. W., completed during October.

The original "West Duluth" line on Jenswold St. (previously Sutphin St.) crossed over the St. Paul & Duluth R.R. (N. P. Ry.) tracks on a timber trestle which by 1902 was in such poor condition that it was unsafe for further use. It was replaced by an underpass necessitating a temporary detour track on 39th Ave. W. between Grand Ave. and Oneota St. which was in use from July 9, 1902, until April 11, 1903.

1903

Single track was built on Grand Ave. (W. 3rd St. became Grand Ave. at 40th Ave. W.) from 40th Ave. W. to 60th Ave. W. This was completed August 15th.

The Highland Ave. line trackage was rebuilt from 8th St. to Locust St., involving 9865.28 lineal feet of single track.

A wye was installed at W. 4th St. and Mesaba Ave. for use by single end cars. The single track had ended at the east property line of Mesaba Ave. but the wye was built in the intersection.

A rail replacement program was begun on E. Superior St., E. 2nd St., E. 4th St., Lake Ave., and W. 3rd St. using 8" 79 lb. T rail. At this time the end of double track on Lake Ave. was cutback from Buchanan St. to Sutphin St.

Single track was built on Woodland Ave. between Hardy St. and St. Marie St. for use as a gravel pit spur. It served what was known as Mcfarlane's or Woodland Gravel Pit.

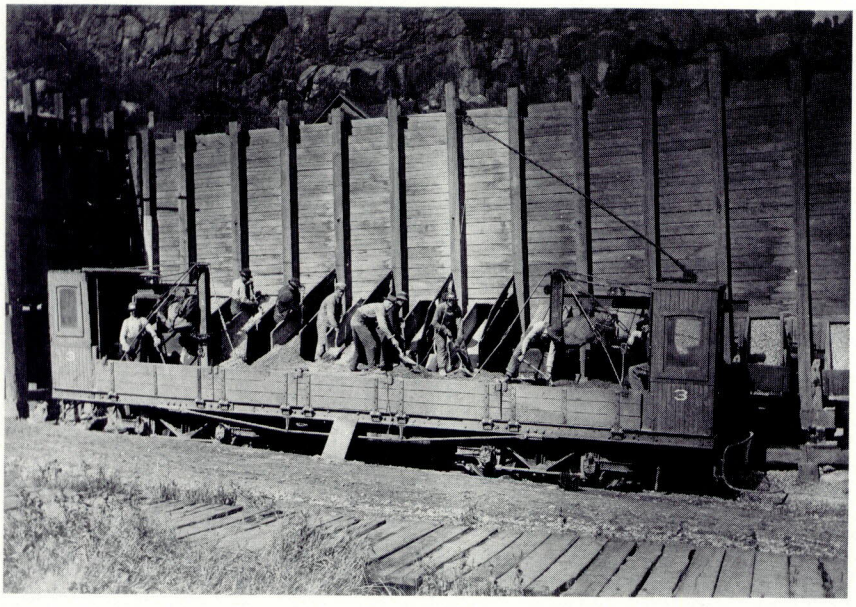
1904

A wye at 23rd Ave. E. and Superior St. was moved during the Fall to 24th Ave. E. and Superior St.

1905

For the purpose of accommodating the new double truck, single end cars, a wye was installed during March at St. Paul Ave. and Woodland Ave. and named the Hunter's Park wye. Service from this point to the end of the line at Austin St. was operated with a single truck, double end shuttle car. Objections to turning the new large cars at the new wye were so strenuous that it was decided to run them through to the end of the line and a loop was then built at Austin St. and Woodland Ave. during August.

Single track was built on Grand Ave. W. from 60th Ave. W. to 71st Ave. W. Second track was added on Grand Ave. from 47th Ave. W. to 49th Ave. W. All of this work was completed October 1st.



Left: Flat Car 3 loading crushed rock from the quarry bins at 12th Ave. W. and Michigan St., 1912.

Below: Wallace Ave. at St. Marie St. on the "Woodland" line, July 15, 1913. The sign on the overhead pole reads "The Motor Line Division".

(Both photographs DSR; Wayne C. Olsen collection)

1906

Single track was built on 57th Ave. W. from Grand Ave. to Medina St. and opened for service October 15th.

A wye was built at 12th Ave. W. and Michigan St.

The Arthur Ave. loop at the approach to the Duluth-Superior bridge was built during August when a ship collided with the bridge, damaging it to the extent that it was out of service for two years. It was originally called the Alger-Smith loop because it was located near that company's lumber mill.

1907

The wye at 8th Ave. W. and Superior St. was removed and replaced with a loop and storage track, for use by westbound cars, this work being done during the spring.

A curve with necessary switches was installed in the existing special work at Garfield Ave. and Superior St. to facilitate pull-outs from the Duluth carhouse to the Duluth-Superior Bridge.

A wye was installed at Grand Ave. and 39th Ave. W.

Sidings had been installed in the late 1890's at 34th Ave. W. and Superior St. in the vicinity of the D. M. & N. Ry. ore docks which were used for access to ash dumps. One of these leads was extended 600 lineal feet around the curve on Jenswold St. with a capacity of six to eight double truck cars; it was used as a car storage track during events at the Duluth Baseball Club Park nearby. A walk was built alongside the track. (Previously the wye and spur at 37th Ave. W. and Oneota St. had been used for this purpose.)

Double track was built on 24th Ave. E. between Superior St. and E. 4th St., completed August 19th. This was used to change the routing of "Woodland" line cars from E. 4th St. to Superior St.

1908

In April DSR entered into an agreement with the city to haul rock from a quarry operation near 12th Ave. W. and Michigan St. to the lakeshore near Morse St. to reinforce the shoreline. The wye at Morse St. and Lake Ave. was extended to the shore. A spur track alongside the quarry was built and connected to the wye at 12th Ave. W. and Michigan St. (DSR developed quite a rock-hauling business from this quarry.) In 1915 rock for re-surfacing streets in West Duluth and Lakeside was hauled from here by DSR. In 1917 it was reported that DSR had hauled from 1300 to 5200 tons of crushed rock each season for the City of Duluth.

1909

The old St. Louis County courthouse was located on 6th Ave. E. between 2nd St. and 3rd St. A new courthouse was built closer to the central business district. As patronage was considerably reduced on DSR's trackage past the old courthouse site, it was decided to relocate the track so as to obtain an easier grade. Track on 6th Ave. E. from 2nd St. to 4th St. was abandoned and replaced by double track on 5th Ave. E. from 2nd St. to 4th St., the work being completed in June. Used rail from this relocation replaced the original rail on portions of W. 4th St. Second track on W. 4th St. was cutback from Lake Ave. to 2nd Ave. E. on August 18th.

Second track was added on Grand Ave. from 39th Ave. W. to 57th Ave. W., the work being completed in October.

Second track was added on E. Superior St. from 47th Ave. E. to 61st Ave. E.

1910

Track was built on Piedmont Ave. from W. 3rd St. to the intersection of 23rd Ave. W. and 10th St., and opened for service on June 1, 1910.

1911

Second track was added on Grand Ave. from 57th Ave. W. to 63rd Ave. W. The necessary curves and switches were installed at 57th Ave. W. and Grand to create a wye at that location. All this work was completed in July.

A connection with the Soo Line Ry. was built at 27th Ave. W. and Superior St. The old connection with the N. P. Ry. at 37th Ave. W. and Oneota St. was then removed.

1912

The wye at Grand Ave. and 39th Ave. W. was extended 600 ft. northward in July to provide additional car storage capacity for circus grounds events.

Double track was built on 21st Ave. W. from Superior St. to W. 3rd St. The existing double track on W. 3rd St. between the intersection of 19th Ave. W. and Piedmont Ave. and 21st Ave. W. was abandoned. All of this was completed as of May 1st.

The "East 9th St." line was built and completed November 1st: double track was built from 5th Ave. E. and E. 4th St. via 5th Ave. E., E. 5th St., 6th Ave. E., E. 7th St., 7th Ave. E., and E. 9th St. to 9th Ave. E.; single track was built on E. 9th St. from 9th Ave. E. to 13th Ave. E. A gravel pit was opened on E. 9th St. at 8th Ave. E. and a spur track built into the pit.

1915

Work started October 11th on a 2200 ft. extension of second track on Woodland Ave. from Stornaway St. to a point beyond Winona St. at the top of Hartley Hill.

The crossovers used by the double end, single truck cars had been gradually removed as the cars were replaced with single end, double truck cars. The last crossover in Duluth, at 5th Ave. W. and Superior St. was removed in July.

World War I resulted in considerable industrial expansion in the southwest area of Duluth adjacent to Spirit Lake at the mouth of the St. Louis River. A steel plant was under construction at Riverside (Ironton) as well as the McDougall-Duluth Shipyards. The U.S. Steel Corp. steel plant, cement plant, and self-contained "model"

community at Morgan Park (named after J.P. Morgan) were also under construction. To serve these industries DSR undertook construction of additional trackage. Single track was built on Grand Ave. from 71st Ave. W. to 84th Ave. W. Second track was added in two stages, (1) from 63rd Ave. W. to 71st Ave. W., and (2) from 71st to 74th Ave. W. All of this was done during 1915 before cold weather halted all construction in November.

1916

Construction resumed in the spring on the track to Morgan Park. Single track was built on Grand Ave. from 84th Ave. W. to 93rd Ave. W., on 93rd Ave. W. and Arbor Ave. to 4th St. (later 88th Ave. W.) and on 4th St. to a loop at E St. called the Morgan Park loop. A passing siding was located on Grand Ave. between 82nd and 83rd Ave. W. A length of double track extended from Grand Ave. and 92nd Ave. W. to 4th St. and A St. Track was located on the side of the road on Grand Ave. from 73rd Ave. W. to 93rd Ave. W. This "Morgan Park" line was opened for service on June 12th or 16th.

In July six automatic block signals were installed on the single track portions: one near 81st Ave. W., two near the substation at 92nd Ave. W., one near 87th Ave. W. (and Arbor) and two at the Morgan Park end. Previously installed were signals at each end of the single track running from 71st to 84th Ave. W.

A wye was built at 32nd Ave. W. and Superior St.

1917

Second track was added to all single track portions of the "Morgan Park" line so that the line was entirely double track, all of this work being completed by October. A loop was built at the substation at 92nd Ave. W. and Grand Ave. during November. (The trackage from 93rd Ave. W. and Zimmerly to the Morgan Park loop was located on a center-of-the-road reservation with center-poles-with-brackets trolley wire suspension, which by this time was the only construction of that nature on the system.)

An extension of the "Morgan Park" line, called the "Gary-New Duluth" line was constructed during 1917 and opened for service on January 1, 1918. Materials for the construction were delivered to DSR by the N.P. Ry. at 85th Ave. W. and Grand Ave. where a 600 ft. connecting spur track had been built; this track was removed February 19, 1918, after construction was completed. Side-of-the-road double track was built along West Boulevard, Idaho, Commonwealth Ave. and Duquesne to Commonwealth Ave.; single track was built on Commonwealth Ave. from Duquesne to McCuen St.; a passing siding was located on Commonwealth Ave. between McGonagle St. and House St.

The "Kenwood Ave." line was completed October 10th. Double track was built on 7th Ave. E. from E. 9th St. to its intersection with Kenwood Ave. at E. 11th St., and then on Kenwood Ave. to E. 12th St.; single track was built on Kenwood from E. 12th St. to E. 14th St. A loop was built at 14th St.

A wye was built at 45th Ave. E. and Superior St. during June.

Looking west on Grand Ave. from 82nd Ave. W., August 28, 1918. The second track had been added during 1917. (DSR; Wayne C. Olsen collection)

Above: Looking west on Commonwealth Ave. from a point west of 96th Ave. W., August 15, 1922.
Below: Looking north on Commonwealth Ave. at the cement plant, October 10, 1918.
(Both photographs DSR; Wayne C. Olsen collection)

1919

A spur track was built to the D. M. & N. Ry. tipple at 33rd Ave. W. and Superior St. so that crushed rock could be delivered direct from railroad cars to DSR work cars.

1921

The spur track at 34th Ave. W. and Superior St. was extended.

90 ft. of track on W. 4th St. at 5th Ave. W. was abandoned.

A 1000 ft. spur track was constructed along 12th St. from Kenwood Ave. into a gravel pit near 10th Ave.

1922

716 lineal feet of second track was added on Woodland Ave. eastward from Winona St. during July.

1923

Second track was added on E. 9th St. from 9th Ave. E. to 13th Ave. E. The loop at E. 9th St. and 13th Ave. E. was retained. An extension of this trackage, called the "East 8th St." line, was built from the loop southeasterly to E. 8th St. and east on E. 8th St. to Kent Road. Double track was built from E. 9th St. and 13th Ave. E. to E. 8th St. and 19th Ave. E., with single track on E. 8th St. from 19th Ave. E. to Kent Road. All of this trackage was opened for service on September 1st. Track in the E. 12th St. gravel pit was altered slightly.

The wye on Lake Ave. at 8th St. on the Park Point line was removed.

1924

Second track was added on Kenwood Ave. from 12th St. to 14th St. New track was built on Kenwood Ave., double track from the former loop at 14th St. to Allen Ave., and single track from Allen Ave. to St. Marie St. The loop at Kenwood Ave. and 14th St. was removed and a loop built at Kenwood Ave. and St. Marie St. This work was completed September 1st. Special work and necessary curves had been installed (October, 1923) to complete a wye at the intersection of 7th Ave. E. and E. 9th St. Permission was asked of the city council in May to lay 200 ft. of spur track on the lower side of the Boulevard east from 10th Ave. E. to remove gravel from the pit for use in construction of the Kenwood Ave. line extension.

364 ft. of side track was removed on the Highland Ave. line.

1925

Some tangent track was removed from the gravel pit at 10th Ave. E. and E. 12th St.

1926

Double track was built on 45th Ave. E. from Superior St. to Crosley Ave. and on Crosley Ave. to 47th Ave. E.; single track was built on Crosley Ave. from 47th Ave. E. to the intersection of 52nd Ave. E. and Glendale St. This was the last major track construction project in Duluth and utilized used rail and wooden overhead poles. This "Crosley Ave." line was opened for service on October 1st.

1927

To provide better service to the Amphitheater, Armory and Curling Club as well as to eliminate interruptions to regular service, the Armory Loop was constructed during July and August. Single track was built on 13th Ave. E., Jefferson St., and 14th Ave. E. connecting with track on E. Superior St. A passing track was located on Jefferson St.

1928

The car storage track (80 lineal feet) west of the Lester River bridge on the "Lakeside" line was removed. . A loop was built in August replacing the wye at Lake Ave. and Morse St. in order to relieve traffic congestion at the Aerial Bridge approach. (The wye leg was removed in July, 1929.)

A gravel pit spur track was built at Kenwood Ave. and Cleveland St. while the spur track at 12th St. and Kenwood was removed.

Second track was added on Woodland Ave. from the top of Hartley Hill (near Winona St.) to the Austin St. loop (approximately 3600 ft.), during July.

The last spur track near 32nd Ave. W. and Superior St. was installed.

1929

A loop was constructed at E. 4th St. and 27th Ave. E.

The wye at 32nd Ave. W. and Superior St. was replaced with a loop during July. The wye and spur track at 37th Ave. W. and Oneota St. were then removed. The car storage track along Jenswold St. at 34th Ave. W. was removed during July.

1930

A pull-in loop track was installed through the "West Yard" at the carhouse, between 27th and 28th Ave. W. on Superior St., which was completed May 19th. This was to relieve traffic congestion on Superior St. before and after rush hour movements of a considerable number of cars.

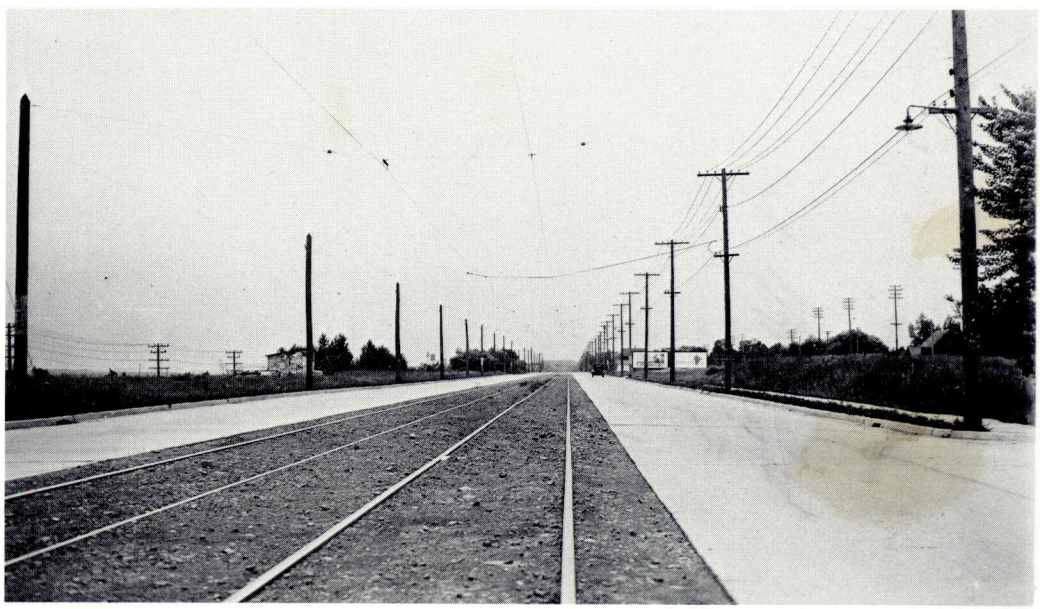
The rebuilding of the Aerial Bridge into a lift-type span was completed early in 1930. Double tracks were installed on the new 388 ft. span of the bridge and its 126 ft. approaches so that through service to and from Park Point could be operated. The first through cars, operating between Park Point and the loop at 8th Ave. W. and Superior St., began using the new tracks on March 12, 1930.

Abandonments

With DSR in receivership, the first abandonment of streetcar service took place. The very unprofitable "West 4th St." line on W. 4th St. from 5th Ave. E. to Mesaba Ave. ceased operating on July 24, 1930.

Additional abandonments of streetcar lines took place during 1931.

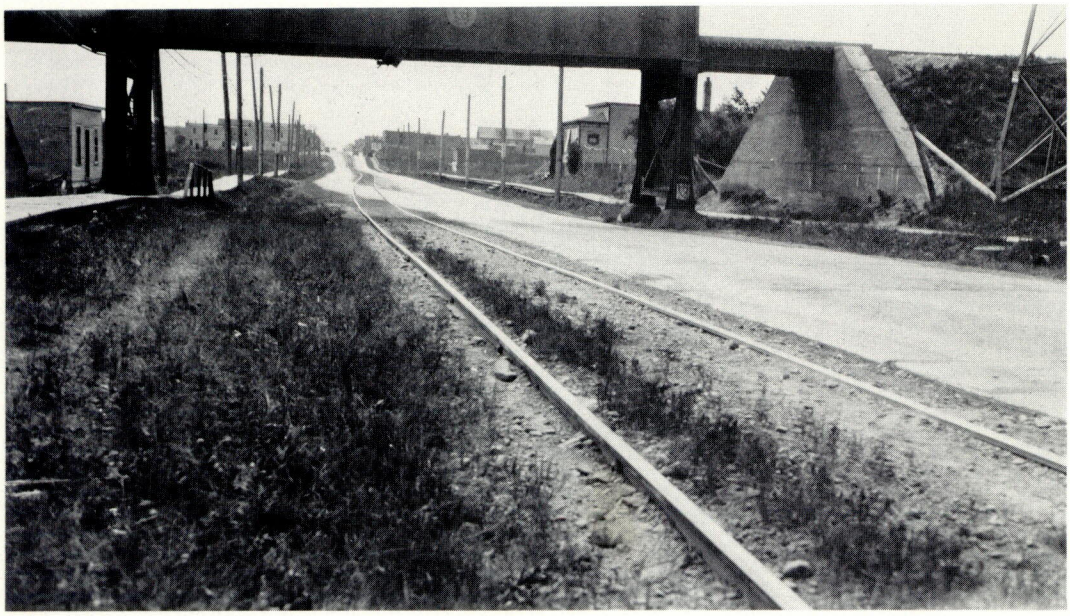
The end of double track on Kenwood Ave. near Villa, February 17, 1931.



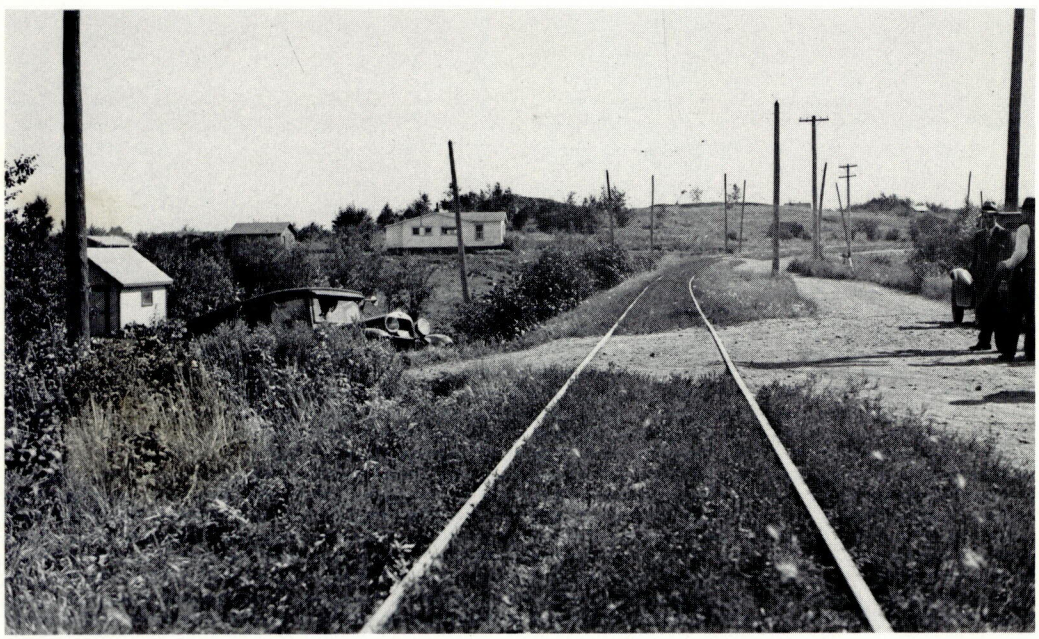
Oneota St. looking west from 41st Ave. W.

31st Ave. E. and Superior St., September 8, 1931.

(All photographs DSR; Wayne C. Olsen collection)



Looking south on Commonwealth Ave. toward New Duluth at the D.M. & I.R.R.R. bridge.



On the "Highland Ave." line, looking east at Arlington Ave., September 10, 1935.

Highland Ave. and Palm St., looking north, May 27, 1938.

(All photographs DSR; Wayne C. Olsen collection)

Due to deficit operation and poor track, the "Park Point" line from Morse St. and Lake Ave. over the Aerial Bridge on Lake Ave. and Minnesota Ave. was abandoned June 15, 1931.

On July 10, 1931, the second track on Lake Ave. from Michigan St. to Sutphin St. was removed. Only rush hour service was provided on Lake Ave. after abandonment of the "Park Point" line.

That portion of the "Lakeside" line on Superior St. from 45th Ave. E. to 61st Ave. E. (Lester Park) was abandoned on August 26, 1931. It was replaced by DSR's first two trolley buses which began operation October 4, 1931.

After acquisition of DSR by the Duluth-Superior Transit Co. the decision was made to convert the system to bus and trolley bus operation as sufficient funds became available. The following paragraphs present the chronology of the conversion.

Trackage on Piedmont Ave. from Superior St. to W. 10th St. was abandoned May 10, 1934.

The rail laid in 1903 on Superior St. between 3rd Ave. E. and 16th Ave. E. was badly deteriorated necessitating speed restrictions. When a paving project was scheduled DST chose to abandon the track instead of relaying it. On July 27, 1934, the track on Superior St. from 3rd Ave. E. to 24th Ave. E., including the Armory loop was abandoned. "Woodland" and "Crosley Ave." cars reverted to the E. 2nd St.-E. 4th St. routing and the track arrangement on 24th Ave. E. and Superior St. was altered to accommodate "Crosley Ave." cars.

A crossover was installed on 45th Ave. E. near Superior St. to allow for double-end shuttle-car operation on the "Crosley Ave." line, which began on October 8, 1934.

The "Interstate" line between Duluth and Superior ceased operations on June 5, 1935; trackage on Garfield Ave. from Superior St. to the Duluth-Superior bridge was then abandoned.

The wye at 12th Ave. W. and Michigan St., which had been used for turning northbound "Interstate" line cars was removed in 1936. The spur track to the rock bins at 33rd Ave. W. and Superior St. was also removed in 1936. Track on Superior St. from 2nd Ave. E. to 3rd Ave. E., including the wye at 3rd Ave. E. was abandoned September 14, 1936.

The "Kenwood Ave." line was abandoned on August 31, 1936; however a shuttle service on Kenwood Ave. from E. 9th St. to E. 12th St. (where a crossover was installed) was begun February 21, 1937, using double end Birney cars in order to supplement the insufficient number of buses and continued until August 27, 1937. After that date trackage on Kenwood Ave. from 7th Ave. E. and E. 9th St. to St. Marie St. was completely abandoned.

When the "Woodland" line was re-routed in 1934, the main retail shopping district was by-passed. Superior St. merchants complained and agitated until DSR agreed to build two blocks of double track which would permit routing of cars via Superior St. through the business district. Double track was built on 2nd Ave. E. between Superior St. and E. 2nd St. and was referred to as the 2nd Ave. E. loop. This was the last track ever constructed by the company and surmounted the steepest grade, other than the incline railway: 10.65% between Superior St. and 1st St. and 10.17% between 1st St. and 2nd St. The track was completed and placed in service on November 12, 1936.

The "Gary-New Duluth" line was abandoned west of the Morgan Park loop on May 5, 1937. However a wye was installed at the west gate of the cement plant near the D. M. & I. R. R.R. on Commonwealth Ave. and service restored June 6, 1937, to this point.

As only two or three trips per day were using the track on Lake Ave. from Superior St. to the ship canal, service ceased in March, 1938, and the tracks were abandoned.

The "West Duluth" line ceased operating on March 13, 1939. This involved abandonment of track on Superior St. from 28th Ave. W. to Oneota, Ramsey, Central and Raleigh to 62nd Ave. W. Track on Superior St. from 21st Ave. W. to 28th Ave. W. was retained for access to the carhouse.

The remaining trackage, with the exception of the Incline Railway and the "Highland Ave." line, continued to be used by the following lines until July 8, 1939:

"East 4th St.", "Woodland", "E. 8th St.", "Crosley Ave." (track on 24th Ave. E. from E. 4th St. to Superior St. and on Superior St. from 24th Ave. E. to 45th Ave. E. had been used only for access to the carhouse since 1934), and the "West 3rd St.-Morgan Park-Gary-New Duluth" lines; with the exception that the branch line on 57th Ave. W. from Grand Ave. to Medina St. was abandoned May 2, 1939. The last car to operate over these lines pulled into the carhouse at 2:30 A.M., July 9, 1939, essentially ending streetcar service in Duluth.

The very last rail operation in Duluth ended on Labor Day, September 4, 1939, when the 7th Ave. W. incline railway and the isolated "Highland Ave." line were abandoned.

Duluth Division Track Mileage as of February 5, 1931

Line (From/To)	First Track	Second Track	Side Track	Total Track
Lakeside (11th Ave. W. & Michigan St./ Lester Park)	6.838	6.838	.216	13.892
West Duluth (11th Ave. W. & Michigan St./ 62nd & Raleigh)	4.839	4.821	2.717(#)	12.377
Lake Ave. & Park Point (**) (Lake Ave. & Superior St./ 43rd St. & Minnesota Av.)	4.137	.634	.329	5.100
Woodland (24 Av. E. & Superior St./ Woodland Ave. & Austin St.)	3.417	3.417	.168	7.001
East 4th St. (3 Av. W. & Superior St./ E. 4th St. & 24th Ave. E.)	2.676	2.676	.076	5.428
West 4th St. (5 Ave. E./ Mesaba Av. W.)	(abandoned) (--------1.1714--------)		.072	.072
Highland Ave.	1.859	.116	.022	1.997
Garfield Ave. (Superior St./ Dul.-Sup. Bridge)	1.884	1.884	.079	3.847
West 3rd St. (21 Ave. W. & Superior St./ 71 Ave. W. & Grand)	4.381	4.381	.251	9.014
57th Ave. W. (Grand/Medina)	.775	.101	.031	.887
Morgan Park (71 Ave. W. & Grand/ Morgan Park loop)	3.5445	3.5445	.081	7.170
New Duluth (Morgan Park loop/ McCuen St. wye)	2.843	1.273	.064	4.180
Incline Railway	.562	.562		1.125
East 9th St. (5 Ave. E. & E. 4 St./ E. 8 St. & Kent Road)	1.905	1.617	.069	3.592
Piedmont Ave. (Superior St./ 10th St.)	.988	.764	.068	1.821
Kenwood Ave. (7 Ave. E. & 9 St./ Kenwood & St. Marie)	1.692	1.344	.250	3.186
Crosley Ave. (45 Ave. E. & Superior/ 52 Ave. E. & Crosley)	1.611	1.072	.026	2.709
Jefferson St. loop (Armory)	.177		.090	.268
Totals	44.110	34.946	4.611	83.668
Add: abandoned track on W. 4th St.				1.171
Track Mileage at peak point				84.838

(#) Includes the carhouse trackage.

(**) Lake Ave. from Superior St. to Morse St. = 0.63 miles track
Morse St. loop = 0.11 miles track.

Track built in 1936 on 2nd Ave. E. from Superior St. to 2nd St. totaled .350 miles of track.

Track Construction Superior

The horsecar lines of the Douglas County St. Ry. prior to electrification consisted of 3'6" gauge single track on the following streets: Tower Ave. from 3rd St. to 21st St.; from Tower Ave. and Belknap St., on Belknap St. to 7th St., on 7th to L Ave. (6th Ave.), on L Ave. to 5th St., and on 5th St. to 25th Ave. E.

Company correspondence dated September 13, 1889 and March 6, 1890 referred to adapting the 3'6" gauge trucks for Daft electric equipment utilizing dual overhead trolley wires. An early newspaper account stated the first electric cars in 1890 had two-wire overhead; the single trolley pole had two wheels; each car had a crew of 3 (motorman, conductor and trolleyman); and round trips were made from 3rd St. and Tower Ave. to 5th St. and 25th Ave. E. Strap rail and stringer track construction was used but in wet weather streets became mush causing frequent derailments; the work crew was re-railing cars from morning to night. Contracts on file indicate that electrification of the existing lines to 3'6" gauge was done by the Northwest Thomson-Houston Co. About 3 miles of track was electrified and in operation beginning July 1, 1890. The remaining trackage was electrified by the end of 1890. The 1890 U.S. Census reported that 5.43 miles of line, involving 6.00 miles of track, was in electric operation, all utilizing 35 lb. T rail.

Records of subsequent construction are lacking. The mortgage papers filed August 13, 1892, upon acquisition by the Superior Rapid Transit Ry. Co., listed the following: double track on Tower Ave. from 3rd St. to 28th St.; single track on 3rd St. from Tower Ave. to Lamborn Ave.; double track on Belknap St. from Tower Ave. to 7th St., on 7th St. to L Ave. (6th Ave.), on L Ave. to 5th St., and on 5th St. to Newton Ave. (25th Ave. E.); single track on Broadway from Tower Ave. to Clough Ave.; and single track on 21st St. from Tower Ave. to New York Ave. Total track was approximately 13.7 miles.

The construction consisted of 2" x 12" planks laid lengthwise on the red clay subsoil of the street grade; 3" x 8" pine ties were placed directly on the planks. 35 lb. T rail was then spiked to the ties. Cedar paving blocks were laid on the planks, with short blocks laid on the ties. These paving blocks proved to be a constant and expensive source of trouble due to the severe climactic conditions.

Under the ownership of the Superior Rapid Transit Ry. additional track construction was continued. The dates of actual construction are unknown in most instances. The only specific dates known are the following.

Double track on Tower Ave. from 28th St. to 61st St. was opened for traffic on September 14, 1892.

During May and June, 1893, a 20' x 40' waiting station and a 25' x 60' platform and boat dock were built at Connor's Point.

Mortgage papers filed July 3, 1894, securing bonds purchased by the Central Trust Co. of New York, indicated that the system consisted of 26 miles of track located as follows: Double track on Main St. from Lamborn Ave. to Connor's Point; double track on N. 3rd St. from Lamborn Ave. to Tower Ave.; double track on Tower Ave. from N. 3rd St. to 61st St. (Central Ave.); single track on Tower Ave. from Central Ave. to 64th St., and single track on Central Ave. from Tower Ave. to Hammond Ave.; double track on Lamborn Ave. from N. 6th St. to Main St.; and double track on N. 6th St. from Tower Ave. to Lamborn Ave. (the 6th St. loop); double track on 21st St. from Tower Ave. to New York Ave.; double track on Broadway from Tower Ave. to Catlin Ave. and on Catlin Ave. from Broadway to Belknap St.; double track on Belknap St., W. 7th St., L Ave., and W. 5th St. from Tower Ave. and Belknap St. to 5th St. and Newton Ave.; single track on W. 5th St. from Newton Ave. to Robertson Ave.

The additional trackage is estimated to have been constructed as follows.

Second track added on 3rd St. from Tower to Lamborn; new double track built on 6th St. from Tower to Lamborn and on Lamborn to 3rd St.; new double track on Lamborn Ave., across the new Lamborn bridge, and on Bridge St. to Main St. and north on Main St. to Connor's Point, all completed in late 1892.

Track built on Tower Ave. from Central Ave. (61st St.) to 63rd St., and on Central Ave. from Tower Ave. east to Hammond Ave., all during 1893. The mortgage papers above list this as all single track, but some DSR records indicate this as double track.

Second track added on Broadway from Tower Ave. to Clough Ave.; new single track built on Broadway from Clough Ave. to Catlin Ave. and on Catlin Ave. from Broadway to Belknap St., all during 1892. The mortgage papers above list all double track as well as do some later DSR records; however an old DSR map shows the track as first described.

Second track added on 21st St. from Tower Ave. to Wyoming Ave., except for single track on the viaduct over the railroad tracks between Butler Ave. and Scranton Ave., all during 1893.

Single track built on E. 5th St. from Newton Ave. (25th Ave. E.) to Robertson Ave. (31st Ave. E.) during 1893.

The Duluth-Superior Bridge was completed in 1897 and DSR laid double track across the bridge to the foot of the Superior approach to the bridge. The "Interstate" line began regular operations across the bridge September 1, 1897. As SRTR track was still 3'6" gauge it was necessary for passengers to transfer between cars of the two companies at the bridge approach. SRTR soon realized that the difference in track gauge was a block to any compatible coordination of the "Interstate" line with DSR and that SRTR was missing its share of the lucrative interstate business. The solution was for SRTR to standard gauge its

line to Connor's Point. Financial difficulties forced a decision, in November, 1897, to delay track work until April 1, 1898. Trackage rebuilt from 3'6" gauge to 4'8½" gauge (using 8" 74 lb. T rail) was as follows: double track on Main St. from the Duluth-Superior bridge to Lamborn Ave., on Lamborn Ave. from Main St. to 3rd St., on 3rd St. from Lamborn Ave. to Tower Ave., and on Tower Ave. from 3rd St. to Belknap St.; only the west track on Tower Ave. from Belknap St. to 21st St.; and one track on Belknap St. from Tower Ave. to the carhouse at Catlin Ave. was modified for dual-gauge operation by addition of a third rail at 4'8½" gauge.

The first operation of standard gauge cars took place September 20, 1898. However it was not until March 28, 1899, that the first through service between Duluth and Superior began under a joint arrangement between DSR and SRTR. An equal number of cars was furnished by each company; operation was from the terminus of the "East End" line in Duluth to 21st St. and Tower Ave. in Superior.

Looking north on Tower Ave. at Broadway, Superior. (Wayne C. Olsen collection)

1900

The Ford Bacon & Davis report provided the following data on the system.

	Miles of Dbl. Trk.	Miles of Sgl. Trk.	Equivalent Sgl. Trk. Miles
1. 74 lb. 8" T rail	1.75	.50	4.00
2. 35 lb. T rail (track in pavement was laid on wood stringers)	10.25	1.50	22.00
2. carhouse track			.50
Total track			26.50

1. included 4 double track railroad crossings, 3 crossovers, 2 double track curves, 4 single track branch-offs, 2 turnout ends, and 1 single track curve.
2. included 5 crossovers, 13 turnout ends, 2 single track branch-offs, 7 carhouse branch-offs, and 15 single track railroad crossings (which actually used 56 to 65 lb. T rail).

F. B. & D. recommended that the 35 lb. T rail should immediately be replaced with first class construction, except on the Steel Plant and South Superior lines where traffic was light. They also recommended that the Tower Ave. line operating around the 6th St. loop and the Broadway line be abandoned as this traffic could be handled by regular service on other lines.

During August through December, DSR made necessary repairs previous to reconstruction on the following: South Superior line on Tower Ave., Steel Plant line, Broadway line, and the 6th St. loop. Track from Main St. and Bridge St. to Connor's Point on the Interstate line, 2.5 miles, was relaid with 5" 80 lb. T rail. A test track, consisting of double track laid in concrete, was constructed on Belknap St. from Catlin Ave. 653 ft. eastward; another source states the north track was 8" T rail bolted to concrete beams — laid on Belknap St. from Catlin Ave. to 178 ft. west of Poplar Ave.

1901

Apparently DSR considered the system as over-built and went before the Superior city council to obtain permission to reduce the amount of trackage. In a renegotiated franchise of August, 1901, the city council ordered certain work done, all of which was to be completed by November 1, 1902. All of the construction listed under the years 1901 and 1902 was done under the provisions of that city ordinance.

Special work and necessary curves were installed to create a wye at the intersection of Tower Ave. and Belknap St.

Frequent and prolonged delays resulting from openings of the Lamborn Ave. bridge and the Duluth-Superior bridge prompted building of a wye at Main St. and Lamborn Ave. (Bridge St.) placed in service June 20th.

One track was removed on the 6th St. loop while the other track was changed from 3'6" gauge to 4'8½" gauge. (On 6th St. and Tower Ave. to Lamborn Ave. — later Grand Ave. — and on Lamborn Ave. from 6th St. to 3rd St.)

The three-rail (dual gauge) track on Belknap St. from Tower Ave. to Catlin Ave., 4050 ft., was repaired. Trackwork at the Catlin Ave. carhouse was also repaired.

Track on Broadway from Tower Ave. to Catlin Ave. and on Catlin Ave. from Broadway to Belknap St. was abandoned and removed.

The 3'6" double track (3.95 track miles) from Belknap St. and Tower Ave., on Belknap, 7th St., L Ave., and 5th St. to 5th St. and Newton Ave. (25th Ave. E.) was removed and replaced with 4'8½" single track (the south track) utilizing 70 lb. T rail. (Temporary track, gauge not specified, was used to maintain traffic during construction.) (This also involved temporary special work at Tower and Belknap as well as at Belknap and Catlin.) Turnouts, involving seven switches, were located at: Poplar Ave., connecting new trackage with the test trackage constructed in 1900; on 7th St., L Ave., and 5th St., from 75' east of Hill Ave. to 152.5' east of L Ave.; a 619.67' siding on 5th St. with its center on Division Ave.; and a 490' siding with the east switch point 199' west of Newton Ave.

The 3'6" gauge single track on 5th St. from Newton Ave. to Robertson Ave. was changed to 4'8½" gauge single track using the existing 35 lb. T rail.

1902

Second track, 4'8½" gauge (the north track) was added on Belknap St., 7th St., L Ave., 5th St., from Tower and Belknap to 5th St. and Newton. The single track on 5th St. from Newton to Robertson was re-laid with 70 lb. T rail. New single track was built on Robertson Ave. from 5th St. to 4th St.

The Steel Plant line was rebuilt from 3'6" double track to 4'8½" single track. However double track was retained on 21st St. from Tower Ave. to Wyoming Ave., except for single track on the railroad viaduct between Butler Ave. and Scranton Ave. New single track was built from 21st St. and New York Ave. (the existing end of the line) on an easement alongside of the street obtained in June from the estate of Frederick W. Billings (former president of the N. P. Ry.) to the gates of the Town & Country Club grounds.

The South Superior line trackage on Tower Ave. from 21st St. to 61st St. was rebuilt from 3'6" gauge double track to 4'8½" gauge single track. One 3'6" gauge track from 21st St. to 63rd St. was removed and one 4'8½" gauge track installed from 21st St. to 61st St. The narrow gauge cars used the remaining track until the standard gauge track was completed. On July 9th the last operation of narrow gauge cars took place, with subsequent removal of the 3'6" gauge track on Tower Ave. from Belknap St. to 63rd St. Track was also removed on 61st St. from Tower Ave. to Hammond Ave. One siding was built on Tower Ave. south of 21st St. Special work was installed to create a wye at the intersection of 21st St. and Tower Ave.

Single track was built on 4th St. from Tower Ave. to Ogden Ave. and on Ogden Ave. from 4th St. to 3rd St. to provide access to the new carhouse under construction at 4th St. and Ogden Ave.

1903

The existing single track on the 6th St. loop was re-laid with 74 lb. T rail.

New rail was installed at Catlin Ave. and Belknap St. when the switches leading into the old carhouse were removed.

A wye was built at 4th St. and Robertson Ave.

Second track (the east track) was added on Tower Ave. from Belknap St. to 21st St. using 7" 70 lb. T rail.

Single track was built on Tower Ave. from 61st St. to 64th St. (This work was to have been done during 1902 as part of the work ordered by the city council but work on crossing the N.P. Ry. tracks south of 61st St. delayed construction until this year.)

Single track was extended into Billings Park (on the Steel Plant line) and a loop with siding built on a parcel of land over which an easement had been obtained from the Billings estate in October. The line was then re-named the Billings Park line.

1904

The siding on the Billings Park loop was removed.

The wye at Catlin Ave. and Belknap St. was extended.

A crossover at Broadway and Tower Ave. was removed. After completion of this work the total track in Superior was 21.55 miles.

1905

A wye was built at 63rd St. and Tower Ave.

1906

A second siding was installed on Tower Ave. This provided two sidings on this line: one was 590' long, located between 1730' and 2320' south of 28th St., equivalent to being located between 32nd and 33rd St.; and one was 310' long, located between 6090' and 6400' south of 28th St., equivalent to being located between 42nd and 43rd St. (There were no platted cross streets on Tower Ave. between 28th St. and 52nd St.)

1907

Single track was built on E. 4th St. from Robertson Ave. (31st Ave. E.) to McBain Ave. (38th Ave. E.) and on McBain Ave. to E. 2nd St. (This was called the "Allouez" extension of the "East End" line.) Second track was added on Robertson Ave. from E. 5th St. to E. 4th St.

1909-1910

A siding was installed at 28th St. and Tower Ave. during 1909. This was followed by the addition of second track on Tower Ave. from 21st St. to 28th St. which was completed June 1, 1910.

1911

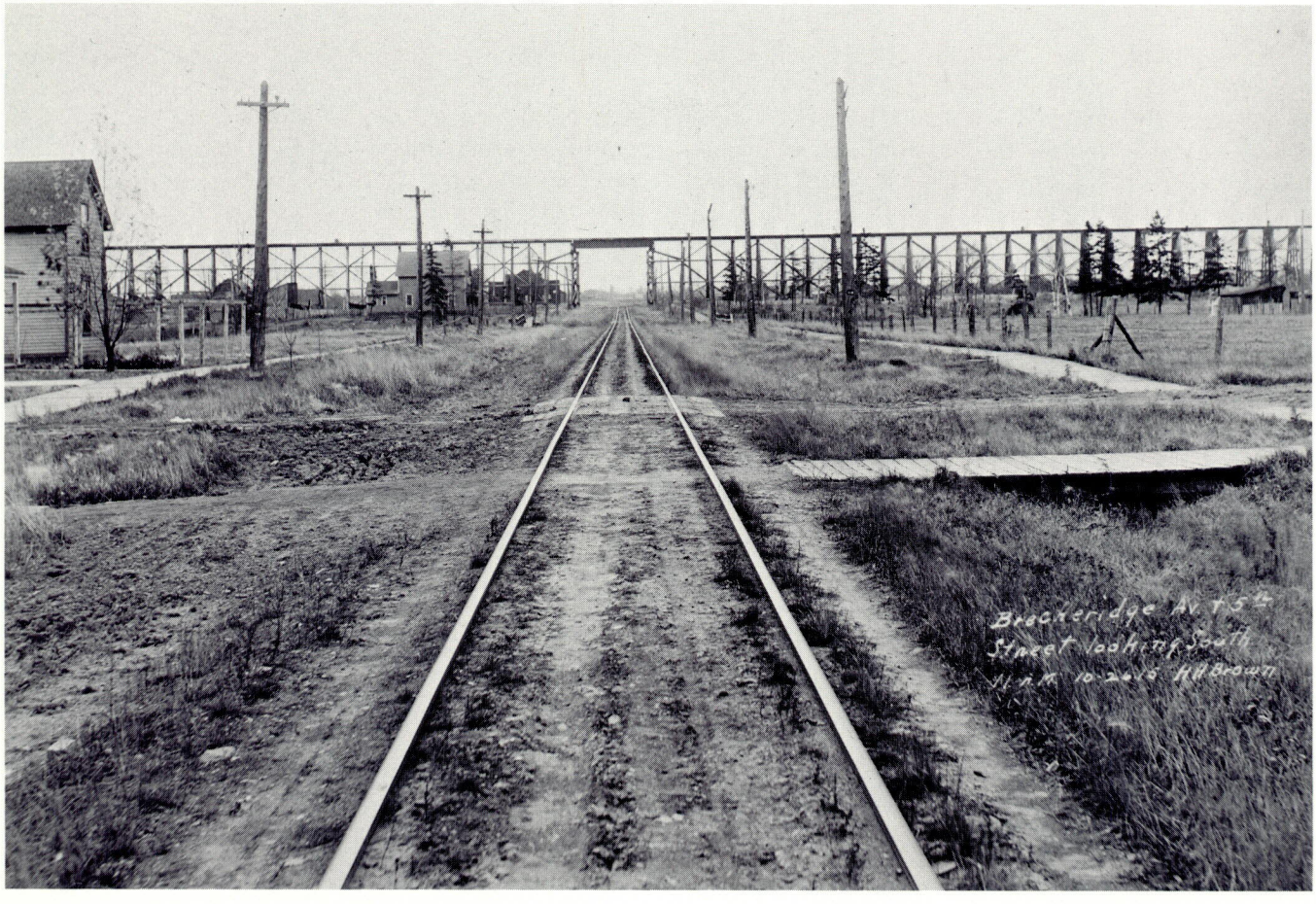
A 500 ft. spur track was built along side the Soo Line Ry. tracks at Belknap St. and Spruce Ave., March 17th. This was for use in unloading ties and rail for rebuilding the South Superior line.

The South Superior line on Tower Ave. south of 28th St. was relaid with heavier rail during the summer. The two existing sidings (at 32nd-33rd St. and 42nd-43rd St.) were removed and replaced with one new siding located at 46th St.

1916

The passing siding at 46th St. and Tower Ave. was extended and a loop constructed during June (950 ft. of track) when the Fairgrounds complex was developed there.

The South Superior wye at 63rd St. and Tower Ave., looking east, April 25, 1913. (DSR; Wayne C. Olsen collection)



Breckenridge Ave. and E. 5th St., looking southeast on 5th St., October 26, 1915. (DSR; Wayne C. Olsen collection)

1917

Second track was added on E. 5th St. from 26th Ave. E. to Robertson Ave. (31st Ave. E.).

The "Broadway" line was built and opened for service July 1st. This consisted of double track (except for single track portions on Winter St. and Hill Ave.) on Broadway from Tower Ave. to Catlin Ave., on Catlin to Winter St., on Winter St. (unimproved) to Hill Ave., and on Hill Ave. to a junction with existing track on Belknap St.

1918

The wye at Main St. and Lamborn Ave. was relocated October 23rd to the south approach of the Duluth-Superior Bridge because of fire damage to the Duluth approach.

1920

Passing sidings were installed on Tower Ave. at 35th St. (500' long) and at 57th St. July 8th. Two sets of Nachod block signals were also installed. (As of January 1, 1927, there were 3 sets of Nachod signals on Tower Ave. . between 3rd St. and 64th St.)

Operation of the 6th St. loop had been counterclockwise. During 1920 the track layout was changed to allow for clockwise operation.

1921

Single track was built on 21st St. from Tower Ave. east to Grand Ave. which was opened for service on January 1, 1922.

1925

A loop was installed during July at E. 5th St. and 24th Ave. E.

A loop replaced the wye at 63rd St. and Tower Ave.

1928

The "Allouez" line as built crossed the Nemadji River over a 2600' timber trestle on E. 4th St. In 1924 the trestle was declared unsafe resulting in the use of Birney cars and the lightweight cars in a variety of ways including shuttle operation. After October 31, 1928, no streetcars were allowed over the trestle. The track was then re-located on E. 2nd St.; a new bridge, fill, and roadway was constructed with side-of-the-road track on E. 2nd St. from 31st Ave. E. to 37th Ave. E. This new track was opened for service November 29, 1928, and the old track on E. 4th St. abandoned. This was the last major track construction project in Superior.

On the "Billings Park" line, the 21st St. bridge was extended to eliminate grade crossings of the N.P. Ry. and D. S.S. & A. Ry. DSR laid new double track on the new bridge extension, making the track on 21st St. double track from Tower Ave. to Wyoming Ave. The bridge was opened on January 1, 1930.

Abandonments

With DSR entering receivership during 1930 combined with the rapidly declining patronage on the Superior lines, the decision was made to replace the streetcars with buses.

The first abandonments took place on June 25, 1931:

1. the 6th St. loop trackage;
2. "Broadway" line: on Broadway, Catlin, Winter and Hill from Tower to Belknap;
3. "South Superior" line on Tower Ave. from 21st St. to 63rd St. The Tower Ave. and Broadway intersection trackage was retained for use in wyeing cars. The line was temporarily re-opened to the Fairgrounds loop at 46th St. from September 6th through 11th, 1931, for the State Fair.

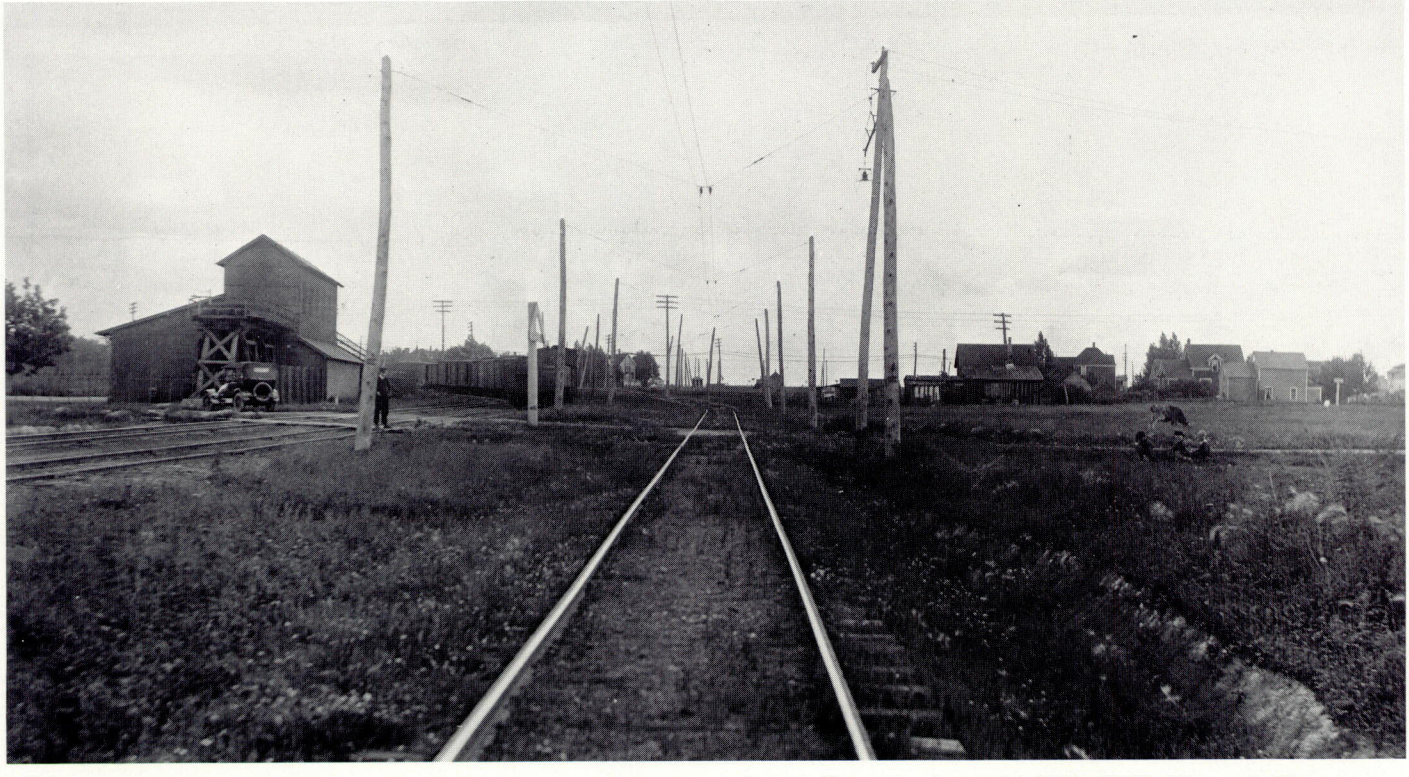
A severe ice storm occurred March 5, 1935, and most of the trolley wire on the "Allouez" line fell to the street. Service was never resumed on the portion from 31st Ave. E. and E. 4th St. to 38th Ave. E. and E. 2nd St. and the track was then abandoned.

The "Interstate" line between Duluth and Superior ceased operating June 5, 1935, resulting in abandonment of the following trackage:

1. from the Duluth-Superior Bridge on Main St., Lamborn Ave., 3rd St., and Tower Ave. to 21st St.;
2. 21st St. from Tower Ave. to Grand Ave.;
3. 21st St. from Tower Ave. to Billings Park; and
4. carhouse tracks and connecting trackage on 4th St. and Ogden Ave.

Street paving projects were the cause of the abandonments.

The last line in Superior, the "East End" line then operated as an isolated piece of trackage. The wye at Catlin Ave. and Belknap St. was used to turn, store and service the cars. The west end of the line operated to Tower Ave. and Broadway but as the paving contractor progressed the operation was cut back to Tower Ave. and Belknap St. The east end of the line operated to E. 4th St. and 31st Ave. E. The last full day of operation was June 23, 1935; lightweight car #301 made the last run pulling into the Catlin and Belknap wye at 1:10 A.M. Monday morning, June 24th.



On Hill Ave. at 12th St., looking south across the C. St. P.M. & O. Ry. tracks to Belknap St., August 14, 1922. (DSR; Wayne C. Olsen collection)

Superior Division Track Mileage as of February 5, 1931

Line	First Track	Second Track	Side Track	Total Track
South Superior (main line)	5.086	2.387	.252	7.725
Billings Park	1.723	1.087	.019	2.829
Duluth (Interstate)	1.632	1.632	.078	3.342
6th St. loop	.764			.764
Carhouse loop	.175		.693	.869
East End-Allouez	4.790	4.002	.323	9.115
Broadway	1.851	1.154	.081	3.087
21st Street	.998	.105		1.089
Totals	17.007	10.366	1.447	28.801

Summary: Total Track

Duluth Division	84.838 miles
Superior Division	28.801 miles
Total	113.639 miles

Looking south on Tower Ave. in South Superior

25th Ave. E. and E. 5th St., looking northwest on 5th St. The N.P. Ry. depot is to the right, as is the streetcar loop track at the top of the slight grade. This location is where the first horsecar line in Superior began. Taken January 26, 1931.

(Both photographs DSR; Wayne C. Olsen collection)

Miles of Track at end of year – 1882 to 1929 and 1935 to 1938

Year	Duluth	Superior	Total
1882	1.00		
1883	1.00		
1884	1.23		
1885	1.67		
1886	2.99		
1887	3.25		
1888	4.22		
1889	4.22		
1890	19.40		
1891	20.53		
1892	28.93		
1893	28.93		
1894	30.60		
1895	30.60		
1896	36.10		
1897	36.10		
1898	36.10		
1899	36.10		
1900	48.80	26.00	74.80
1901	48.80	23.40	72.20
1902	49.51	21.55	71.06
1903	49.51	21.55	71.06
1904	49.509	21.553	71.062
1905	50.93	21.55	72.48
1906	51.70	21.57	73.27
1907	53.47	21.57	75.04
1908	53.47	22.67	76.14
1909	55.24	22.75	77.99
1910	54.96	23.53	78.49
1911	56.89	23.54	80.43
1912	58.88	23.54	82.42
1913	58.93	23.54	82.47
1914	58.96	23.54	82.50
1915	60.22	23.54	83.76
1916	65.47	23.72	89.19
1917	76.56	27.32	103.88
1918	76.70	27.32	104.02
1919	76.77	27.32	104.09
1920	76.77	27.51	104.28
1921	76.96	28.61	105.57
1922	77.20	28.63	105.83
1923	79.01	28.63	107.64
1924	81.04	28.63	109.67
1925	81.04	28.69	109.73
1926			112.36
1927			112.62
1928			113.36
1929	84.84	28.80	113.64
1935	65.98	—	
1936	63.71	—	
1937	61.15	—	
1938	60.58	—	

Track Mileage

Duluth and Superior combined-1902 U.S. Census: First track 38.24 miles, second track 30.70 miles, sidings and carhouse track 1.76 miles, and total track 70.70 miles. Duluth and Superior combined-1907 U.S. Census: First track 42.50 miles, second track 29.04 miles, sidings and carhouse track 3.56 miles, and total track 75.10 miles. 1.13 miles of this total was operated by a combination of electric traction and counterweight inclined cable.

A newly constructed bridge in Duluth being measured for deflection. Each flat car is fully loaded with steel rails and the engineers are taking elevations with their instruments. The location is Tischer's Creek, 33rd Ave. E. and Superior St. (McKenzie Studios; Wayne C. Olsen collection)

3. POWER GENERATION AND DISTRIBUTION

Superior

Power for the initial electrification in 1890 was supplied by the Superior Water, Light & Power Co. The 1890 U.S. Census listed one power station with two engines (totaling 250 h.p.) and two dynamos. The 1900 valuation reported that the power plant site was located at 2nd St. and Ogden Ave. (0.75 acres of land). The building was of two-story brick construction measuring 50' x 100'. The first floor contained the boiler room (35' x 50') and engine room (50' x 65') while the second floor was unused. The building and site were leased until 1094 when they were purchased. Old records of the Douglas County St. Ry. list the following power plant equipment purchases.

1891 (May-August): one 22" x 42" 300 h.p. non-condensing Corliss engine, purchased from the E.P. Allis Co.; three Babcock & Wilcox 150 h.p. water tube boilers; and three Thomson-Houston D62 bi-polar, 80 h.p., 62 KW generators purchased from the Northwest Thomson-Houston Co.

1892 (June-October): one 26" x 42" 400 h.p. non-condensing Corliss engine, purchased from the E.P. Allis Co.; and one Thomson-Houston 300 KW generator purchased from the Northwest Thomson-Houston Co. The 1900 Ford Bacon & Davis report stated that the 300 H.P. engine was belted to a countershaft to which were belted *four* D62 generators. The 400 h.p. engine was belted with a tightener to one 300 KW generator. Thus the total capacity of the station was 548 KW. Coal for the boilers was wheeled in barrows from an adjoining railway siding.

On April 30, 1903, DSR entered into a contract with the Great Northern Power Co. for the purchase of hydro-electric power. The first power was received under this contract about January 1, 1908. The steam plant was required to be kept in operating condition for emergency use until the power company was able to furnish all the power required. The steam plant was taken out of operation May 25, 1914, and all equipment removed during December, 1914.

A summary of DSR's power facilities in 1925, lists the Superior equipment as: Superior stations of Great Northern Power Co. furnishing 600 volts D.C.: (a) 2nd St. and Hughitt Ave., two motor-generator sets of 1500 KW each; and (b) Belknap St. and Poplar Ave. (placed in operation October 31, 1922), one automatic rotary converter of 500 KW; total capacity was 3500 KW.

Duluth

The powerhouse for the electrification of the system was built during 1890 at 11th Ave. W. and Michigan St. The building was enlarged in 1892. According to the 1900 Ford Bacon & Davis report the building was of brick and stone construction with steel framing and floor beams, wood floors, and measured 98' x 108' with the boiler room being 41' x 98' and the engine room 63' x 98'. There were four floors in the rear and two floors in front on the street. The lower two floors were used for the engines and generators while the first street floor was used for car storage and the second street floor housed the general offices. The lone brick smokestack was 7' in diameter and 150' high. Machinery installed during 1890 included: one Allis tandem-compound condensing Corliss engine 18" and 32" x 48" of 350 h.p. belted to a countershaft on the second floor to which was belted five Thomson-Houston D62 62 KW generators; and three Babcock & Wilcox 160 h.p. water-tube boilers.

Additional machinery was installed during 1891: one Allis non-condensing Corliss engine 18" x 42" of 150 h.p. belted to two Thomson-Houston D62 62 KW generators; and one Ball 9" x 12" high-speed engine belted to a 50-lite Western arc dynamo.

When the building was enlarged in 1892 the generating capacity was increased substantially during 1892 and 1893. This equipment consisted of: one Allis cross-compound condensing Corliss engine 30" and 56" x 60" of 1000 h.p. belted to the countershaft on the second floor as well as belted directly to four generators, two Thomson-Houston M.P. 270 270 KW generators (1892) and two Thomson-Houston M.P. 300 300 KW generators (1893).(This required a flywheel 28' in diameter with 10'8" face weighing — with shaft and crank — 96 tons which was reportedly the largest in the U.S. at that time); two Babcock & Wilcox 192 h.p. water-tube boilers (1892); and one Babcock & Wilcox 240 h.p. water-tube boiler (1893).

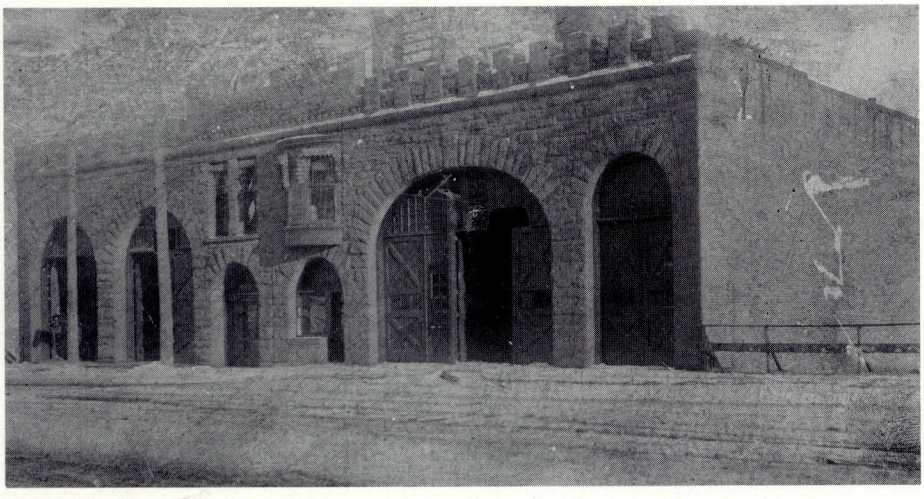
The engine, two generators and two boilers were placed in service September 16, 1892. However the two generators and one boiler installed in 1893 were not used until 1896 because of the reduction in passenger traffic caused by the financial depression of 1893. Coal was dumped into the boiler room from a railroad siding on a trestle adjacent to the building. As of March, 1900, the station capacity was 1574 KW. The capacity of the plant was again increased when installation was completed in February, 1904, of one 1000 h.p. steam engine and one 630 KW generator.

A contract was entered into April 30, 1905, with the Great Northern Power Co. for the purchase of hydro-electric power in both Duluth and Superior, which provided that the first power was to be received during 1905.

On June 17, 1907, a fire struck the steam plant at 11th Ave. W. and Michigan St.; the large steam engine was put out of commission as water fell on the machinery and belt. Service was paralyzed completely for the rest of the evening and seriously crippled the next day. The two smaller engines in the west side of the building were utilized to resume service. The necessity for purchased electric power was immediate but it was not until September 13, 1907, that the first power was received from GNP Co. The transition to complete purchase of power took three years:

Year	Percentage of power produced	
	Steam plant	GNP Co.
1907	79%	21%
1908	7%	93%
1909	0%	100%

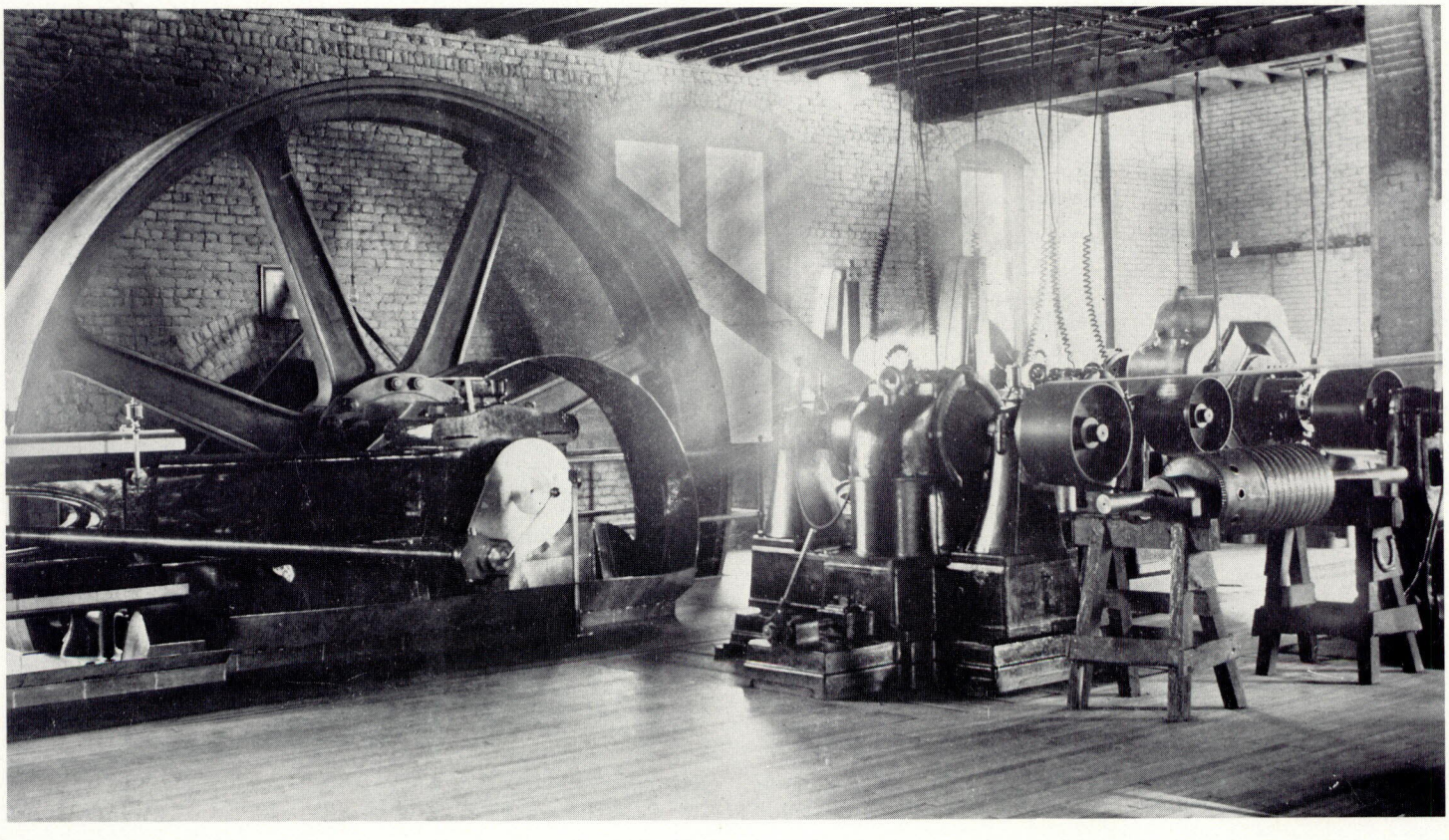
The steam plant was maintained as a standby from 1907 through 1914. Equipment from the plant was removed during December, 1914. The site and buildings were sold June 13, 1916.



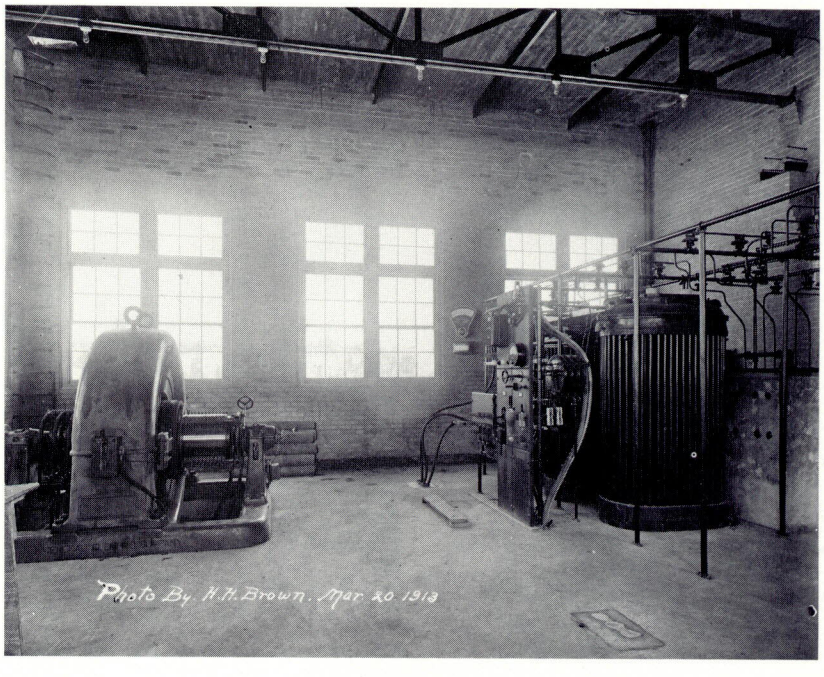
Left: The office and carhouse portion of the powerhouse building at 11th Ave. W. and Michigan St.

Below: The 96 ton flywheel, showing the shaft and crank from the Allis-Corliss engine, in the powerhouse at 11th Ave. W. and Michigan St.

(Both photographs DSR; Wayne C. Olsen collection)



Substation #1 at 34th Ave. E. and E. 4th St., Duluth, nearing completion in March, 1913.



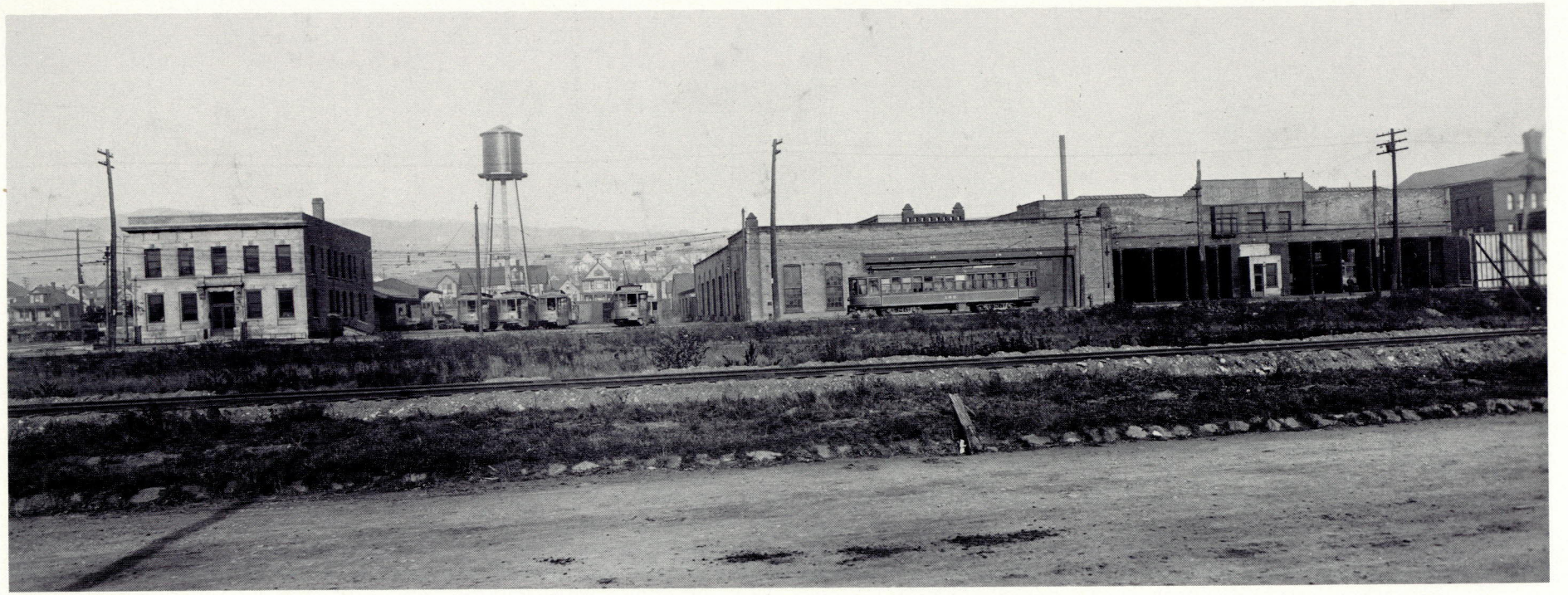
Interior of Substation #1, showing the rotary converter, step-down transformers, and switchboard.

(Both photographs DSR; Wayne C. Olsen collection)

A summary of the company's power facilities in 1925 provides a description at the time of their greatest extent. Electrical energy was generated at the Great Northern Power Co.'s Thompson Dam and transmitted at 66,000 volts, 25 cycle, A.C. to the power company's stations in Duluth and Superior. Power was transmitted from these stations at 13,200 volts, 25 cycle, A.C. to DSR substations where it was stepped down to 430 volts A.C. At this voltage it went through synchronous converters where it was changed to 600 volts D.C. and fed to the trolley wires. Automatic substation control was introduced about 1919 and DSR's were the first installed in the northwest.

Duluth stations of the Great Northern Power Co. furnishing 600 volts D.C.: (a) 15th Ave. W. and Superior St. — three motor-generator sets of 1500 KW each and (b) 13th Ave. E. and E. 5th St. (placed in operation October 28, 1922) — one automatic rotary converter of 1000 KW.

Duluth sub-stations of DSR receiving A.C.: (a) 34th Ave. E. and E. 4th St. (sub-station #1) (placed in operation March 15, 1913; one-story and basement, brick and concrete construction, with space for two 500 KW rotary converters) — one automatic rotary converter of 500 KW; and (b) 92nd Ave. E. and Grand Ave. (sub-station #2) (placed in operation May 9, 1916, one-story and basement, brick and concrete construction) — one automatic rotary converter (installed 1916) of 500 KW and one automatic rotary converter (installed Oct.-Nov. 1918; leased from U.S. Shipping Board Emergency Fleet Corp. from 1918 until purchased in 1921.) of 1000 KW; total capacity was 1500 KW.



Above: Office, shops, and carhouse on W. Superior St. between 26th Ave. W. (right) and 27th Ave. W. (left) in 1913. From left to right are: office building (storage sheds to the rear), nine-track car storage yard, four-track paint shop (carpenter, machine, blacksmith shops and storeroom to the rear), and thirteen-track carhouse. (DSR; Wayne C. Olsen collection)

Below left: The "Highland Ave." line carhouse at the top of the incline railway, May, 1938. (Herman Rinke)

Below right: The Park Point carhouse as it appeared in 1922; note that two of the three yard tracks are now enclosed by an addition to the building. (Photo by Edson; Wayne C. Olsen collection)

4. CARHOUSES AND SHOPS

Duluth

The Endion carhouse was built at 20th Ave. E. and Superior St. in 1890; of brick construction it measured 100' x 150' and had a capacity of 22 20 ft. cars. The first test run of an electric car was made from here on November 2, 1890. It was used as an operating carhouse for only a short time as it was learned that operations could be handled more satisfactorily from one location. The building was subsequently used for storage of supplies and materials. It was leased to the Duluth Polo Club on October 15, 1894, for use as a rink during the winter months. Apparently DSR continued to use the facilities for it was reported that during 1900 and 1901 old Superior single truck passenger cars were moved here for storage. On October 17, 1901, the building and property were sold to the Duluth Episcopal Diocese.

During 1890 a two-story building was constructed at 11th Ave. W. and Michigan St. replacing the one-story horsecar barn and stables built in 1885. This was used as an operating carhouse until 1893 when the newly constructed buildings at 26th Ave. W. and Superior St. were completed. The powerhouse building at this location continued in use. The general offices of the company were moved to this location in November, 1897. On February 22, 1908, the offices were again moved, this time to a newly constructed building at 27th Ave. W. and Superior St. The property, carhouse and powerhouse buildings were sold June 13 (July 15?), 1916, to the Bridgeman-Russell Co. All tracks were removed and the buildings demolished, the final work completed February 24, 1917.

During 1891 construction began on a building of brick and stone construction, measuring 150' x 225', at 26th Ave. W. and Superior St. When completed in 1893 the carhouse contained 13 tracks with repair pits throughout; capacity was eighty-nine 20' cars. Machine, blacksmith, woodworking and paint shops, and armature winding room were on the second floor over the rear portion, while the line foreman's office and conductor-motormen's room were on the second floor over the front portion. The center portion was open to the roof.

An additional 150 front-feet of land was purchased in July, 1902, on 1st St. west of the carhouse building, and additional shop buildings constructed. The forge, machine and motor shops were completed in February, 1903.

In June, 1904, it was announced that a 100' x 100' addition would be constructed on Superior St. west of the carhouse building. Essentially a one-story building with a central second-story for the master mechanic's office and drafting rooms, it contained four tracks and the carpenter, paint and general repair shops.

A contract was awarded in April, 1907, for construction of an office building at 27th Ave. W. and Superior St. The building was completed in February, 1908. At the same time nine storage tracks were built between the shop and new office buildings.

In June, 1909, a 90' high water tower for fire protection purposes was under construction.

Property was purchased on Superior St. between 27th and 28th Avenues W. for material and car storage. Called the "west yard", track laying was completed during June, 1909.

In June, 1917, it was announced that two additional car storage tracks were to be built at 27th Ave. W. and Superior St. during the summer, for use by the wrecker, tower car, and other service equipment.

Minor modifications were made in subsequent years to the track layout and building interior arrangements. As of January 1, 1926, the track mileage at the carhouse comprised: tracks 1-13 in the carhouse = .790 miles, tracks 14-17 in the shops = .114 miles, tracks 18-26 = .762 miles, Soo Line Ry. connection = .109 miles, 27th to 28th Ave. W. including the three-part wye at 27th = .734 miles, and total track = 2.509 miles.

During May, 1930, a change was made in the trackage at 28th Ave. W. and Superior St. to allow incoming cars to be moved clear of traffic on Superior St.

When the conversion to buses and trolley buses took place the buildings were converted to bus garages and shops and are in use as such today.

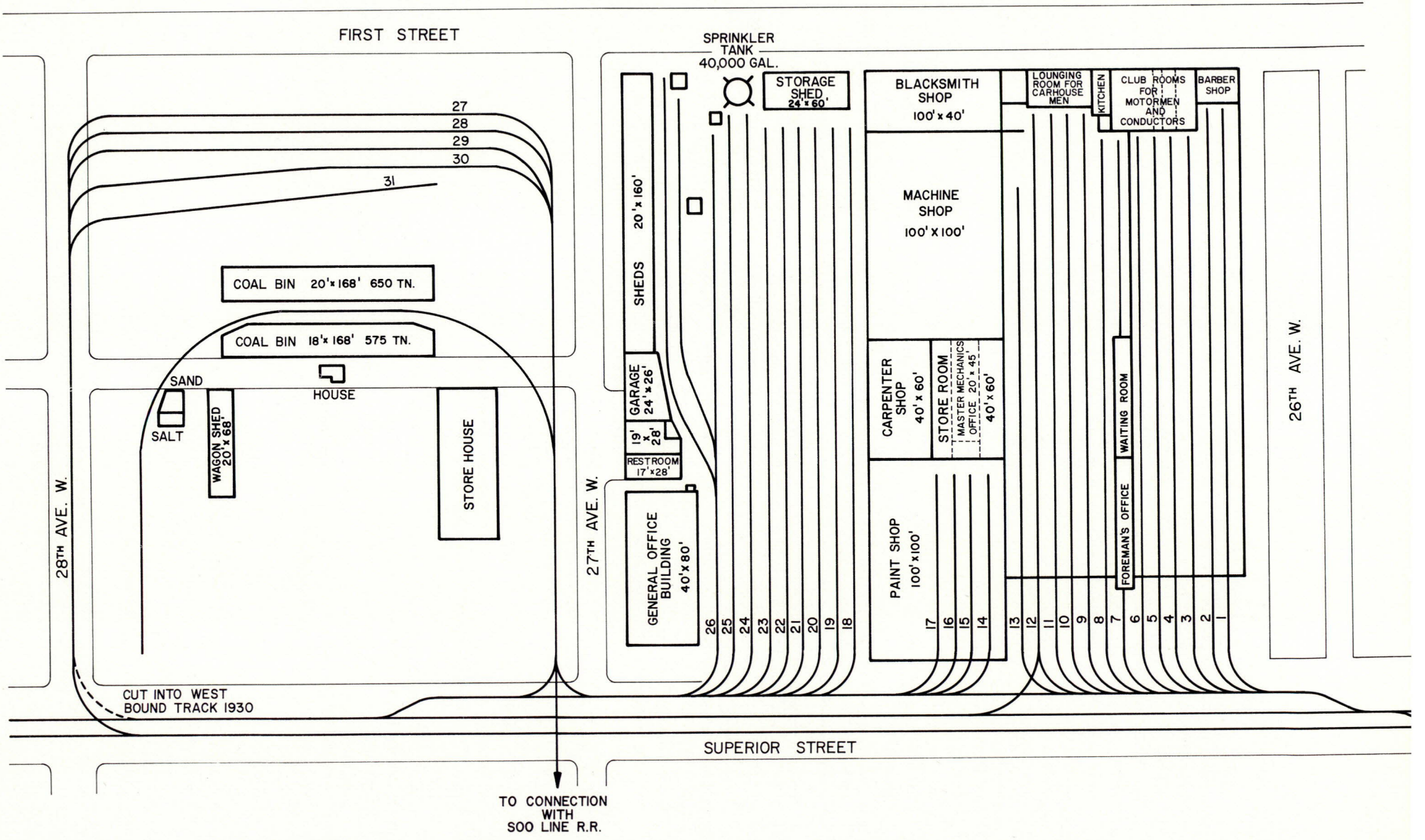
A one-story stone and frame carhouse building was located at 7th Ave. W. and 8th St. at the top of the incline railway. It was used to store, service, and perform minor repairs on cars operating on the "Highland Ave." line. The building housed one track with a capacity of one car. In 1922 the building was lengthened slightly. As of January 1, 1926, this carhouse contained .01373 miles (72.5 ft.) of track.

The two carhouses of the Park Point Traction Co. were acquired with the company in 1917. As of January 1, 1926, this comprised the following: regular carhouse (one-story brick and concrete measuring 46' x 150'): = .1843 miles (973.2 ft. including 4 switches) of track; fire carhouse = .0665 miles (351.3 ft. including two switches) of track; and total track .2508 miles (1324.5 feet).

The fire car carhouse was given to the City of Duluth for a fire station in 1930. The regular carhouse was taken out of service in 1930 upon completion of the Aerial Bridge (cars were then assigned to the carhouse in Duluth) and subsequently sold.

DULUTH STREET RAILWAY

DULUTH MINNESOTA
CARHOUSE AND SHOPS
1925



Left: The Superior carhouse at Belknap St. and Catlin Ave. about 1891. Car 102 is at the left. Construction materials are stockpiled along the street.

Above: Another view of the same location taken about 1893 after completion of additional buildings. 110 heads the line of cars on the storage track at the right.

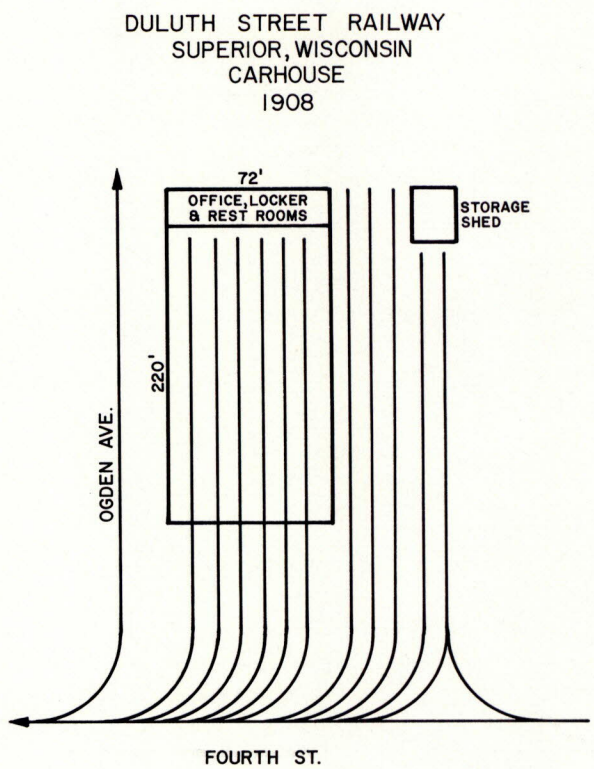
(Both photographs Wayne C. Olsen collection)

Superior

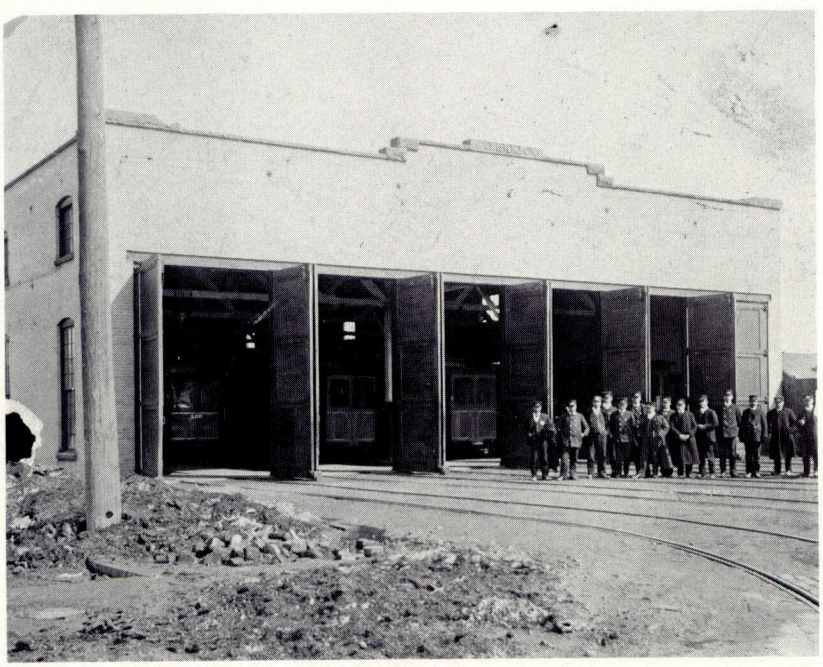
The original horsecar barn and stables were rebuilt during October, 1889, located on 0.144 acres of land at 5th St. and Newton Ave. (25th Ave. E.). Presumably this was also used by the very first electric cars. Its disposition is not recorded.

A contract was let in December, 1890, for construction of a carhouse at Catlin Ave. and Belknap St. Subsequent contracts were let in December, 1891 (carhouse and office); November, 1892 (powerhouse and carhouse); and January, 1893 (addition to carhouse). The 1900 valuation listed the following structures at this location (0.8035 acres of land): general office building (10' x 20' frame construction); frame construction one-story, 100' x 110' storage shed containing seven tracks, with wooden pits under five tracks (capacity: 19 20 ft. cars); frame construction 50' x 100' storage shed; oil house; salt house; foundry building; two waiting rooms; and a blacksmith and machine shop.

The city statistician in 1892 reported that the company had two carhouses: one of wood at Belknap St. and Catlin Ave., and one of brick, stone and iron on Tower Ave. near 28th St. However no other reference of any kind in any other records has been located with regard to a carhouse at Tower Ave. and 28th St.; this must remain as one of those little mysteries that plague historians. After DSR acquired the property the shop facilities were closed and all shop operations moved to DSR facilities at 26th Ave. W. and Superior St., effective September 8, 1900. When DSR completed construction of the new carhouse in Superior, the old frame buildings at Belknap and Catlin were sold.



DSR constructed a new brick carhouse and office building at 4th St. and Ogden Ave., completed December 19, 1902. During 1908 four storage tracks and a wye were added. As of January 1, 1927, this facility contained .662 miles of track. It was converted into a bus garage when the streetcars were replaced.



The new Superior carhouse at 4th St. and Ogden Ave. shortly after completion in 1902. (Wayne C. Olsen collection)

5. OPERATIONS

Duluth Line Routings

The layout of the city was affected by its relation to the lake and the steep bluffs. As mentioned previously, many of the lines were necessarily long and presented difficult operating problems in providing adequate service efficiently and at least cost. Consequently the combinations of line routings were constantly being revised in attempts to accomplish these objectives. Lightly traveled lines, which were low revenue producers were combined separately from heavily traveled lines, or in some cases were operated as branches of the latter lines.

The early electric lines included the following:

"West Duluth & East End" line from 62nd Ave. W. and Raleigh St. to 22nd Ave. E. and Superior St.

"Lakeside" line, from 5th Ave. W. and Superior St. on Superior St. and Lakeside Ry. Co. tracks to 60th Ave. E. and Superior St.

"East 4th St." line, from 5th Ave. W. and Superior St. to E. 4th St. and 14th Ave. E.

"Woodland" line, from 5th Ave. W. and Superior St. to E. 4th St. and over Motor Line Improvement Co. tracks to Woodland. During the summer of 1893 and May 1-19, 1894, eastbound cars operated over Superior St. to 12th Ave. E. and on 12th Ave. E. to E. 4th St. in order to provide an easier grade for motor cars pulling trailers.

"West 4th St." line, from 5th Ave. W. and Superior St. to W. 4th St. and 5th Ave. W. As of December 4, 1894, the cars were turning around at 3rd Ave. W. and Superior St.

"Lake & Garfield" line, operating on Lake Ave., Superior St. and Garfield Ave. In 1894 mention is made of the "Garfield Ave. & West Superior" line.

The new "W. 3rd St." line which opened July 1, 1896, was operated in conjunction with the "Lakeside" line.

With the opening of the Duluth-Superior Bridge to streetcar traffic September 1, 1897, a re-alignment of certain lines went into effect. The "West Duluth & Lake Ave." line was established. The "Interstate" line replaced the "Garfield Ave." line and the "East End" part of the "West Duluth & East End" line. The "Interstate" line cars were run to 22nd Ave. E. and Superior St. "Woodland" line cars were run via E. 4th St., W. 3rd St. to 40th Ave. W., while "Lakeside" line cars were cut back to 5th Ave. W. and Superior St.

Thus, as of March, 1900, this was the frequency of service operated.

	Cars required		Headway-minutes	
Line	**Base**	**Maximum**	**Base**	**Maximum**
"W. Duluth & Lake Ave."	6	15	15	3¾
"Woodland & W. 3rd St."	4	4	30	30
"Lakeside"	2	6	40	10 and 20
"West 4th St."	1	1	30	30
"East 4th St."	1	2	30	10 and 20
"Highland"	1	1	30	30
"Interstate"	12	12	10	10

The "Interstate" line operated from 22nd Ave. E. and Superior St. in Duluth to 21st St. and Tower Ave. in Superior. DSR provided 8 cars and SRTR 4 cars. Each company received the fares collected on its own track and the excess of car miles operated by either company over the other's track was paid for by the other at a rate of 4¾ cents per mile. This arrangement was slightly to the advantage of SRTR.

With the completion of the Aerial Bridge in 1905, the "West Duluth & Lake Ave." line was re-named the "West Duluth & Aerial Bridge" line.

When trackage on West 3rd St. was extended to 60th Ave. W. and Grand Ave. in August, 1903, the "East Fourth and West Third" line was established, the cars running eastbound to E. 4th St. and 25th Ave. E. (A reference to a "Lake Ave. & W. 3rd St." line at May 31, 1905, has also been noted.)

Beginning March 16, 1905, double truck cars were placed on the "Woodland" line, running from 8th Ave. W. and Superior St. to the St. Paul Ave. (Hunter's Park) wye every 30 minutes. A shuttle car (a single truck car) was operated from the wye to the end of the line at Austin St. However complaints about this transfer arrangement led to through service with double truck cars beginning August 27, 1905.

With completion of double track on 24th Ave. E. between Superior St. and E. 4th St. on July 22, 1907, "Woodland" line cars began operating over Superior St. between 3rd Ave. W. and 24th Ave. E. instead of E. 4th St. "East End" and "West Duluth & East End" cars began turning

Above: A westbound "W. Duluth & Aerial Bridge" car passes the Point of Rocks near 14th Ave. W. and Superior St., April, 1910. (McKenzie Studios; Wayne C. Olsen collection)

Below: 5th Ave. W. and Superior St., Duluth, looking east on Superior St. about 1915. (Wayne C. Olsen collection)

back here, running directly onto 24th Ave. and backing out onto Superior St.; previously the cars had backed into a stub wye at this same location.

In April, 1907, it was announced that the wye at 8th Ave. W. and Superior St. would be replaced by a loop on which all "East End", "Lakeside", "Hunter's Park", "East 4th St.", and "West 4th St." cars would turn around. On August 15, 1907, it was announced that the main transfer point at 5th Ave. W. and Superior St. would be changed the following week to 3rd Ave. W. and Superior St.

During the period of time from 1909 to 1926 the system grew to its fullest extent. Continually changing traffic patterns also affected the line routings during this period. DSR, of necessity, was very flexible in scheduling and routing so it is not possible to record all of the changes that were effected. Neither does it seem possible to briefly and simply relate such a complicated subject; the following paragraphs thus provide only certain basic information for selected points in time that represent the more interesting aspects of the operation. Certain terminology with regard to geographical locations is explained at this point to simplify the presentation.

Hunter's Park = wye at St. Paul Ave. and Woodland Ave.; West Duluth = 62nd Ave. W. and Raleigh St.; West End = 26th Ave. W. and Superior St. until 1916; thereafter 32nd Ave. W. and Superior St.; East End = 24th Ave. E. and Superior St. The "Lakeside" line designation was re-named "Lester Park" in 1915. Aerial Bridge = Lake Ave. and Morse St.

The "Interstate" line in Duluth normally ran to 24th Ave. E. and Superior St. during the winter months. During the navigation season cars operated only to 3rd Ave. E. and Superior St. in order to minimize interruptions to service brought about by the frequent openings of the Duluth-Superior Bridge. Effective February 21, 1919, cars began running to 3rd Ave. E. and Superior St. normally, except during rush hours (6 to 8 A.M. and 5 to 7 P.M.) when runs were extended to 24th Ave. E. and Superior St. When the Crosley Ave. trackage was completed in October, 1926, cars began running to the end of this line. The Armory Loop was built in August, 1927, and cars began turning around there instead.

The "E. 4th St. & W. 3rd St." line ran from E. 4th St. and 24th Ave. E. to 71st Ave. W. and Grand Ave. (Fairmount Park), and to 57th Ave. W. and Medina St. Short line service was operated from E. 4th St. and 24th Ave. E. to 39th Ave. W. and 3rd St. (Grand Ave.). As of November 1, 1915, two additional routings were operated: 3rd Ave. E. and Superior St. to 39th Ave. W. and W. 3rd St.; and 71st Ave. W. and Grand Ave. to Lakeside (61st Ave. E. and Superior St.).

In February, 1916, another routing was added: 3rd Ave. E. and Superior St. to 57th Ave. W. and Grand Ave.

In June, 1916, the line was extended westward to Morgan Park, and again, in January, 1918, to Gary-New Duluth. Cars then also ran from E. 4th St. and 24th Ave. E. to 92nd Ave. W. and Grand Ave., Morgan Park, and Gary-New Duluth. There are indications that additional variations were: 3rd Ave. E. and Superior St. to 92nd Ave. W. and Grand Ave. (1919); and 57th Ave. W. and Grand Ave. to New Duluth (Jan., 1920).

The "Main Line", as DSR internal reports referred to it, was operated with a variety of long line and short line route combinations in order to meet traffic demands. About 1910 these combinations were utilized:

West Duluth to Aerial Bridge
West Duluth to East End
West Duluth to 3rd Ave. E.
West Duluth to Woodland
West Duluth to Lakeside
East End to West End
8th Ave. W. and Superior St. to East End
8th Ave. W. and Superior St. to Hunter's Park and Woodland
8th Ave. W. and Superior St. to Lakeside

By November 1, 1915, the following combinations were added: 8th Ave. W. and Superior St. to Aerial Bridge; West End to 3rd Ave. E. and Superior St.; West End to Lakeside (Lester Park); and 8th Ave. W. and Superior St. to East End.

In 1919 these two additional combinations were noted: Hunter's Park-West End; and West End to 45th Ave. E. and Superior St.

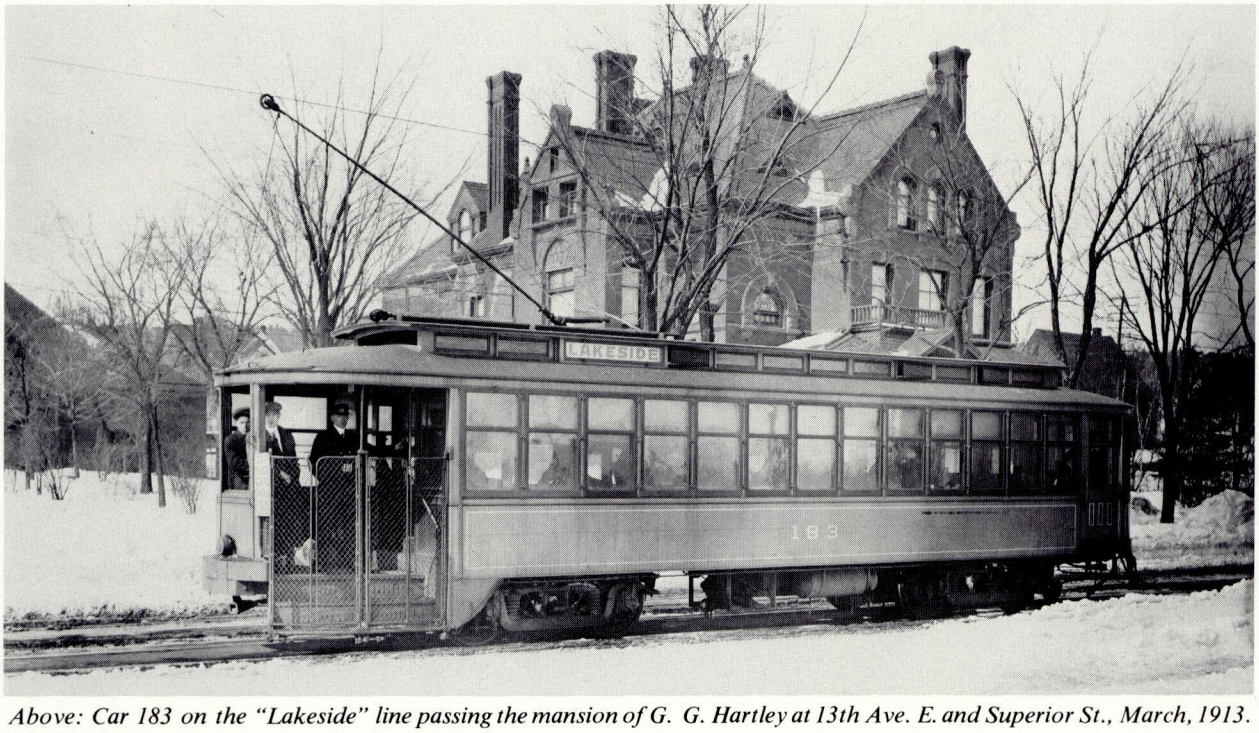
The "West 4th St." line originally operated from 12th Ave. W. and Michigan St. When track on Piedmont Ave. was completed in 1910 the "W. Fourth & Piedmont" line was established. The "East 9th St." line opened in 1912 and was operated from 8th Ave. W. and Superior St. The "Kenwood Ave." line also operated from 8th Ave. W. and Superior St. when it opened in 1917. Effective December 4, 1918, the "Piedmont-Kenwood" line was established; and the "West 4th St." line began operating from 8th Ave. W. and Superior St.

Apparently this combination did not work out too well for by February, 1919, DSR was back to operating the "Kenwood Ave." and "Piedmont & W. 4th" lines. During the summer of 1919 the situation changed once more: "W. 4th St." line became a shuttle operation on W. 4th St. from 5th Ave. E. to 5th Ave. W.; "Kenwood Ave." line was operated from 8th Ave. W. and Superior St.; and "Piedmont & East 9th St." line was established, with some runs operated as "Piedmont-Kenwood".

The line acquired from the Park Point Traction Co. in 1917 was operated as DSR's "Park Point" line. The July 14, 1921, issue of the Duluth newspaper reported that DSR had installed temporary track and trolley wire on the Aerial Bridge and ferried two large double truck cars of the 151-162 series across to Park Point. The previous Sunday 10,800 passengers had been carried over the line, the largest crowd ever. So DSR decided to furnish 10

minute service on the line which required more equipment than was available (four double truck cars and three Birney cars). The two large cars were operated back-to-back as one train, special couplings and air brake connections having been made for this purpose as there were no wyes for turning the cars. The crew consisted of one motorman and two conductors, one conductor in each car.

As passenger traffic changes occurred more frequently due to increased use of the automobile, more variations in route combinations were tried after 1926. These are now discussed in some detail. (It should be noted that an extension of the East 9th St. trackage to and on East 8th St. was opened in 1923.)



Above: Car 183 on the "Lakeside" line passing the mansion of G. G. Hartley at 13th Ave. E. and Superior St., March, 1913.
Below: Looking north on Lake Ave., April 25, 1915.
(Both photographs Wayne C. Olsen collection)

A DSR informational poster, undated but apparently from the 1927-1928 period listed the lines and the method of operation which was very interesting.

9:00 A.M. to noon	Noon to 4:00 P.M.	7:00 to 10:00 P.M.
Eastbound:		
Lester Park-New Duluth	Lester Park-New Duluth	Woodland-New Duluth
Crosley-57 Ave. W.	Crosley-57 Ave. W.	E. 4th St.-57 Ave. W.
Woodland to 8 Av. W. & Sup. St.	Woodland-Fairmount Park	Lester Park to 8 Ave. W. & Sup. St.
E. 4th St. to 8 Av. W. & Sup. St.	E. 4th St. to 39th Ave. W.	—
West Duluth-E. 4th St.	West Duluth-E. 4th St.	West Duluth-Crosley Ave.
Piedmont-Kenwood	Piedmont-Kenwood	Piedmont-Kenwood
E. 8th St. to 8th Ave. W. & Sup. St.	E. 8th St. to 8th Av. W. & Sup. St.	E. 8th St. to 8th Av. W. & Sup. St.
Westbound:		
Lester Park-New Duluth	Lester Park-New Duluth	Lester Park-New Duluth
Crosley-57 Ave. W.	Crosley-57 Ave. W.	Crosley-57 Ave. W.
Woodland to 8 Ave. W. & Sup. St.	Woodland-Fairmount Park	Woodland to 8th Ave. W. & Sup. St.
E. 4th St. to 8th Av. W. & Sup. St.	E. 4th St. to 39th Ave. W.	—
West Duluth-East 4th St.	West Duluth-East 4th St.	West Duluth-East 4th St.
Piedmont-E. 8th St.	Piedmont-E. 8th St.	Piedmont-E. 8th St.
Kenwood to 8th Av. W. & Sup. St.	Kenwood to 8th Av. W. & Sup. St.	Kenwood to 8th Av. W. & Sup. St.

An April, 1928, listing, however, does include the "West Duluth-Aerial Bridge" line. Effective June 16, 1929, the following changes were to go into effect: E. 8th St.-57th Ave. W.; and Piedmont-East 4th St.

The routes operated and service provided as of September, 1929, was as follows.

"Interstate": from Armory Loop, Duluth, to and from 21st St. and Grand or 63rd St. and Tower Ave., Superior; 20 minute base service required 9 cars with 10 minute rush hour service requiring 4 additional cars.

"West 4th St.": shuttle operation between 5th Ave. E. and 5th Ave. W.; one car provided 20 minute service.

"Kenwood Ave.": to and from 8th Ave. W. and Superior St.; 20 minute service provided throughout the day using three cars, with one car added in the afternoon rush hour.

"Piedmont & East 4th St.": from 4th St. E. and 24th Ave. E. to and from 8th Ave. W. and Superior St. or Piedmont Ave. and 10th St.; 10 minute base service was provided on East 4th St. to 8th Ave. W. while 20 minute service was provided on the Piedmont Ave. portion; all of this service required 6 cars. During the morning rush hour 10 minute service was provided over the entire line; this was also the case in the evening rush hour except that 7½ minute service was provided on E. 4th St. to 8th Ave. W.; this rush hour service required one additional car in the morning and two additional cars in the evening.

"Park Point": Aerial Bridge to 43rd St. and Minnesota Ave.; 20 minute service provided all day using two cars.

"Highland Ave.": 30 minute base service was provided using one car. During the morning and evening rush hours one car was added to provide 15 minute service.

Incline railway: the two cars provided 15 minute service all day.

"West Duluth-Aerial Bridge": Aerial Bridge to and from 32nd Ave. W. and Superior St. or 62nd Ave. W. and Raleigh St.; 20 minute base service was provided over the full length of the line using four cars. In rush hours 10 minute service was provided requiring four additional cars in the morning rush hour and five additional cars in the evening rush hour.

"Main Line": Lester Park, Crosley Ave., Woodland

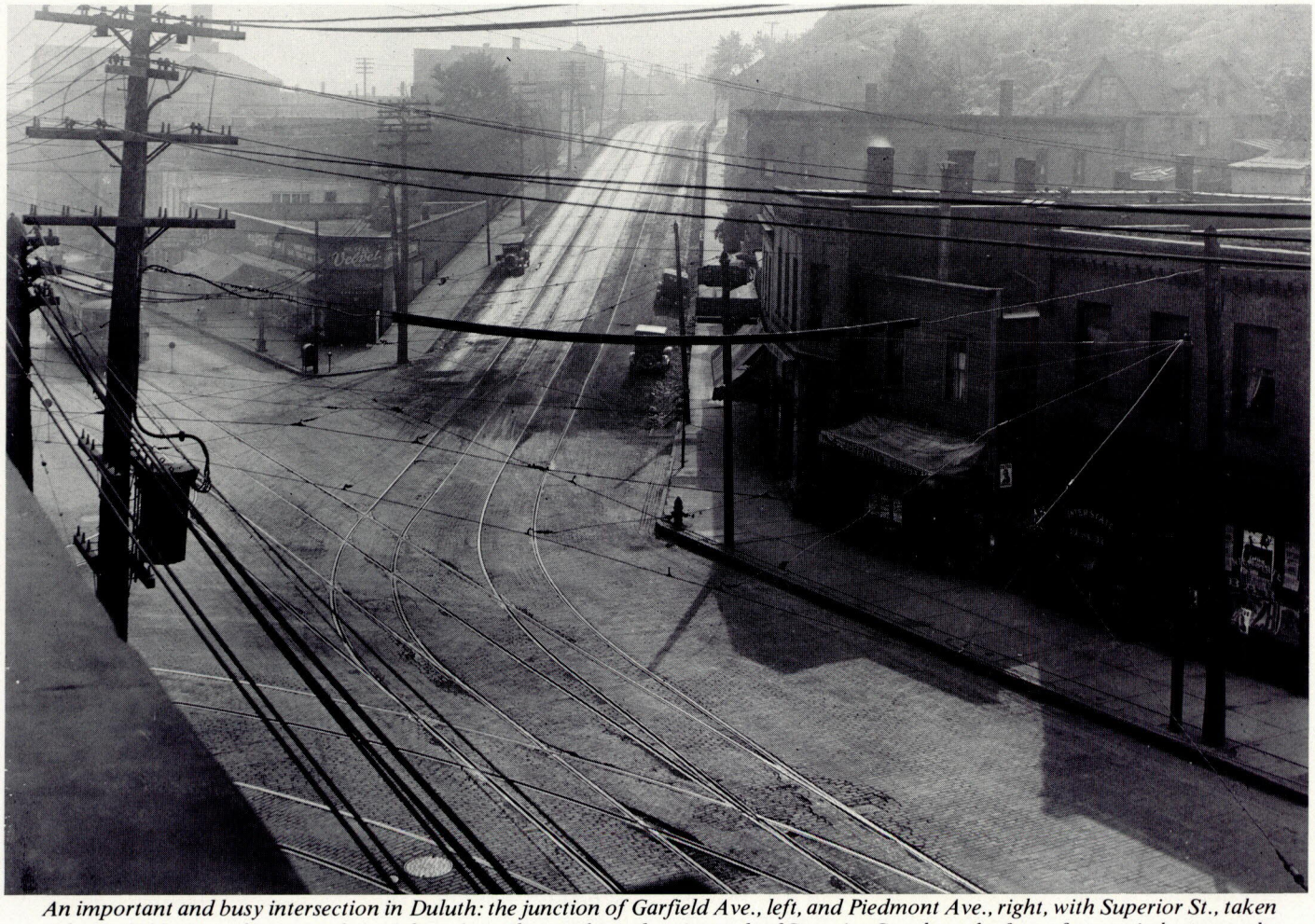
(via 24th Ave. E. and Superior St.) and East 8th St., to and from 57th Ave. W. and Medina St., and New Duluth, with some cars turning back at 8th Ave. W. and Superior St., 71st Ave. W. and Grand Ave., and Morgan Park; 20 minute base service was provided on all portions of the line requiring 23 cars. During morning and evening rush hours, 7½ minute service was given on East 8th St., 10 minute service on Lester Park, Crosley Ave., and Woodland, 10 minute service to 71st Ave. W. and Grand, and 20 minute service to New Duluth and 57th Ave. W. and Medina St. This rush hour service required 19 additional cars in the morning and 32 additional cars in the evening.

The car requirements for operating service in Duluth as described in the foregoing, as well as in Superior, are summarized after the description of line routings in Superior.

The Aerial Bridge was rebuilt to a lift type structure beginning in the fall of 1929. DSR laid double track over the new lift span and the first test car ran over the bridge on February 8, 1930. The "Park Point" line was extended over the bridge on Lake Ave. and Superior St. to 8th Ave. W. and Superior St. effective March 12, 1930. DSR had wanted to use its standard cars on the line but the cost of land to build a loop at 43rd St. and Minnesota Ave., plus the poor condition of the track prevented this. The Park Point double truck cars were modified for through-route service and re-assigned to the 26th Ave. W. and Superior St. carhouse. The carhouse at Park Point was removed from service. (DSR gave the fire car carhouse to the city for use as a fire station.) As a result of this through operation of the "Park Point" line, the "Kenwood-West Duluth" line was established. A "Piedmont-Park Point" line was then tried but the Park Point cars (285-288) would not perform satisfactorily on the steep Piedmont Ave. grades so the plan was dropped after two days of disrupted operation. "Park Point" line cars thereafter operated to 8th Ave. West and Superior St. only.

A November, 1930, listing indicates that the following changes had been effected: "West Duluth-East 4th St." line; and "Piedmont to Kenwood and Lake Ave." line.

The "West 4th St." line was abandoned in 1930 and the "Park Point" line in 1931. Also in 1931 that portion of the "Lester Park" line on Superior St. from 45th Ave. E. to 61st Ave. E. was abandoned.



An important and busy intersection in Duluth: the junction of Garfield Ave., left, and Piedmont Ave., right, with Superior St., taken July 13, 1923. Note the unusual special work on the westbound main track of Superior St. where the frog of one switch crosses the mate of the other switch. (DSR; Wayne C. Olsen collection)

Another company informational poster, also undated, apparently pertains to operations after the foregoing abandonments.

9:00 A.M. to noon	Noon to 4:00 P.M.	7:00 to 10:00 P.M.
Westbound:		
Woodland-New Duluth	45 Av. E. & Sup. St. to New Duluth	Woodland-New Duluth
Crosley-57 Av. W.	Woodland-57 Av. W. Crosley-71 Av. W. & Grand	Crosley-57 Av. W.
Kenwood-West Duluth	Kenwood-West Duluth	Kenwood-West Duluth
East 8th St. to 8th Av. W. & Sup. St.	East 8th St. to 32 Av. W. & Sup. St.	East 8th St. to 8th Av. W. & Sup. St.
Piedmont-East 4th St.	Piedmont-East 4th St.	Piedmont-East 4th St.
E. 4th St. to 8th Av. W. & Sup. St.	East 4th St. to 8th Av. W. & Sup. St.	—
Eastbound:		
Woodland-New Duluth	Woodland-New Duluth	Woodland-New Duluth
Crosley-57 Av. W.	Crosley-57 Av. W. 45 Av. E. & Sup. St. to 71 Av. W. & Grand Av.	Crosley-57 Av. W.
West Duluth-East 8th St.	West Duluth-East 8th St.	West Duluth-East 8th St.
Kenwood to 8th Av. W. & Sup. St.	Kenwood to 32nd Av. W. & Sup. St.	Piedmont-Kenwood
East 4th St. to 8 Av. W. & Sup. St.	East 4th St. to 8 Av. W. & Sup. St.	East 4th St. to 8 Av. W. & Sup. St.
Piedmont-East 4th St.	Piedmont-East 4th St.	—

The March, 1933, newspaper reported that the track on Lake Ave. had been in use only for rush hour service since the "Park Point" line had been abandoned June 15, 1931.

In May, 1934, the "Piedmont Ave." line was abandoned, replaced by the "Lester Park-Piedmont" trolley bus line, which also replaced streetcar service on Superior St. between 3rd Ave. E. and 24th Ave. E.

Because of the unimproved streets on the "Crosley Ave." branch line, streetcars had to be retained. An "E. 4th St.-Crosley" line had been tried after abandonment of the Superior St. trackage but did not work out satisfactorily. So service was changed to a shuttle car operation from 45th Ave. E. and Superior St. to the end of the line at 52nd Ave. E. Thus the trackage on Superior St. from 24th Ave. E. to 45th Ave. E. was used for access to the carhouse only.

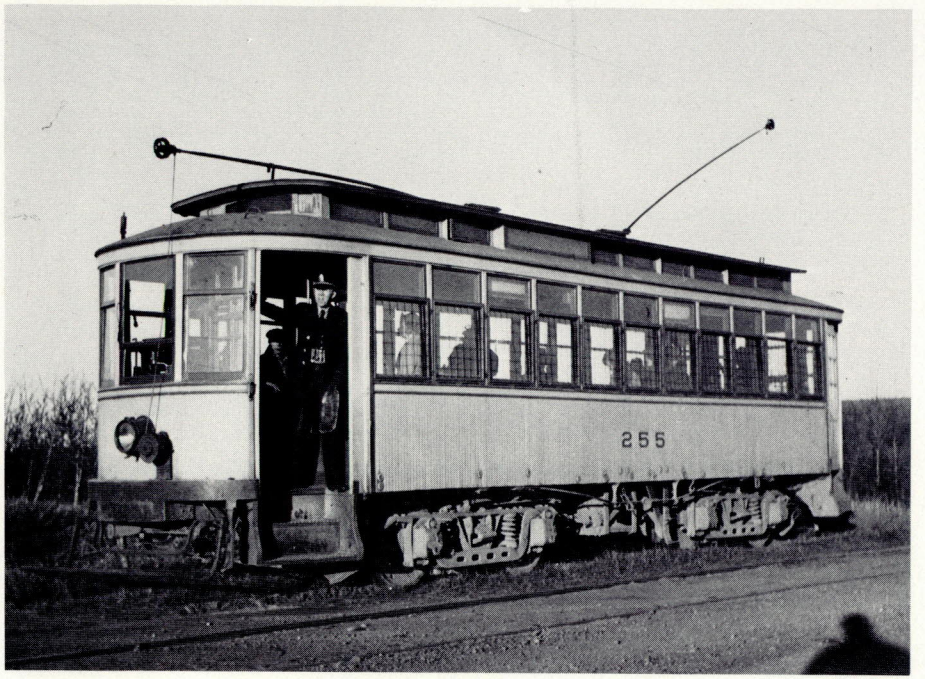
On November 12, 1936, the loop utilizing new trackage on 2nd Ave. E. was opened with the resulting changes:

Woodland, East 4th St., and East 8th St. cars turned north to 2nd St. at 2nd Ave. E.

New Duluth, 71st Ave. W. and Grand, 57th Ave. W. cars turned south to Superior St. at 2nd Ave. E.

West Duluth cars continued on the old route on 3rd Ave. W. Cars that formerly wyed at 3rd Ave. E. now looped via Superior St. — 3rd Ave. W. — 2nd St. — 2nd Ave. E. — Superior St.

Effective May 2, 1939, all owl service was provided by buses, streetcars were operated on the East 8th St. in rush hours only (buses otherwise), and the 57th Ave. W. branch line was abandoned.



Above left: Car 255 on the 13th St. siding of the "Highland Ave." line in the late 1930's.
Above right: "Gary-New Duluth" car southbound on 88th Ave. W. in Morgan Park.
(Both photographs Wayne C. Olsen collection)

Below left: Car 217 on E. 9th St. at 11th Ave. E.
Below right: Snow Plow 4/146 derailed on Kenwood Ave.
(Both photographs James Kreuzberger)

Superior Line Routings

Information is lacking on the early Superior routings. During 1892 the following were operated: "Main St.-Tower Ave.-South Superior" line; "East End" line; "21st St." or "Steel Plant" line; and the "Broadway" line.

As of March, 1900, the lines operated and the frequency of service provided was as follows. (The "Interstate" line is described in the section on Duluth.)

Line and Route	Cars Required	Headway-minutes
"East End" from Belknap and Tower on Belknap, 7th St., L Ave., and 5th St. to Newton Ave.	3	15
"South Superior" from Belknap and Tower to 64th St. and Tower Ave.; alternate cars ran east on Central Ave. to Hammond Ave.	2	30
"Tower Ave." from Belknap and Tower on Tower Ave., 6th St., Lamborn Ave., 3rd St., and Tower Ave. to Belknap and Tower. (Connections were made with cars on the East End line.)	2	15
"Steel Plant" from 21st St. and Tower Ave. to 21st St. and New York Ave.	1	20
"Broadway" from Tower and Broadway on Broadway, Catlin, Belknap, 7th St., L Ave., and 5th St. to Robertson Ave.	1	60

Rush hour service consisted of one additional car on the Steel Plant line for two hours each morning and evening, and two extra trips in the morning and one extra trip in the evening on the East End line.

About 1909-1910 the lines operated were as follows:

"Billings Park" line from the 3rd St. & Ogden Ave. loop via Tower Ave. and 21st St. to Billings Park.

"East End-Allouez" line. The "East End" line ran from the 3rd St. and Ogden Ave. loop via Tower Ave. and Belknap St. to 4th St. and Robertson Ave. The "Allouez" line operated from 4th and Robertson to 2nd and McBain with some runs operating through to the 3rd and Ogden loop.

"South Superior" line from the 6th St. loop (layover was taken at 3rd St. and Grand Ave.) via 3rd St. and Tower Ave. to Tower Ave. and 63rd St.

"Interstate" line from Duluth via Duluth-Superior Bridge, Main St., 3rd St., and Tower Ave. to 21st St. and Tower.

Regular service had been operated separately from the 3rd St. and Ogden Ave. loop on Tower Ave. to 28th St. and Tower Ave., but this was discontinued June 1, 1911, and service on the South Superior line increased.

By February, 1915, the "East End-Allouez" line had been re-routed around the 6th St. loop.

Upon completion of the Braodway line trackage during 1917 the "Billings Park-Broadway" line was established. Trackage was built on 21st St. from Tower Ave. eastward to Grand Ave. in 1922 and the "Interstate" line extended over this track.

In April, 1925, when the lightweight cars were received, the original plan for their operation called for:

the "Interstate" line to operate 10 minute service on the "East End" line (to Robertson Ave.) and 20 minute service on the "Allouez" line (to 2nd & McBain);

3 lightweight cars on the "South Superior" line, operating around the 6th St. loop;

1 lightweight car on the "21st Street" line, operating from 21st and Grand to Tower and Belknap, wyeing at Tower and Belknap;

1 lightweight car in reserve as a spare; and the "Billings Park-Broadway" line to operate with rebuilt one-man cars.

The "Interstate" line routing over the "East End-Allouez" line was due to public pressure and did not work out satisfactorily, beginning April 19, 1925, and being discontinued July 1, 1925. In 1926 the "Interstate" line was operating as follows: Crosley Ave. and 52nd Ave. E.,

The Lamborn Ave. bridge in Superior, April, 1932. (L. P. Gallagher, Jr.; Wayne C. Olsen collection)

Duluth, to 21st St. and Grand Ave., Superior; and 24th Ave. E. and Superior St., Duluth, to 63rd St. and Tower Ave., Superior. Twenty minute base service was provided.

The routes operated and service provided during 1927 were:

"Billings Park-Broadway" line — Billings Park — 21st St. — Tower Ave. — Broadway to Hill Ave. and Belknap St. where the cars wyed. 20 minute service was provided using three rebuilt one-man cars. One car was added in the evening rush hour.

"Interstate" line — same operation as described in 1926.

"East End" line — 3rd St. and Ogden Ave. loop via Tower and Belknap to 4th St. and Robertson Ave. Twenty minute base service was provided using three rebuilt one-man cars.

"Allouez" line — from the 6th St. loop (layover taken at 3rd St. and Grand Ave.) via Tower and Belknap to 2nd and McBain. Twenty minute base service was provided using four lightweight cars.

By September, 1929, the "East End" and "Allouez" lines had been combined into one line. Twenty minute service was provided using four lightweight cars. 10 minute morning and evening rush hour service was provided for which three additional cars (rebuilt one-man cars) were required.

On May 15, 1930, one-man cars replaced two-man cars on the "Interstate" line. Cars alternated between 21st St. and Grand Ave. and South Superior on trips from Duluth. For example a car would operate from Duluth over the bridge, Main St., 3rd St., Tower Ave. and 21st St. to 21st and Grand, then back to and around the 3rd St. and Ogden Ave. loop, down Tower Ave. to South Superior, then back to Duluth.

Again bowing to public pressure, the "Interstate" line was routed over the "East End-Allouez" line from December 1, 1931, until May 1, 1932. The round trip time was too tight to provide satisfactory service during the navigation season because of the opening and closing frequency of the Duluth-Superior bridge.

Car Requirements – September, 1929

Duluth base service		
"Main line"	23 cars	
West Duluth-Aerial Bridge	4 cars	
Interstate	9 cars	
Kenwood Ave.	3 cars	
Piedmont-East 4th St.	6 cars	
West 4th St.	1 car	
Highland Ave.	1 car	
Park Point	2 cars	
		49 cars
incline railway		2 cars
Superior base service		
Billings Park-Broadway	3 cars	
East End-Allouez	4 cars	
		7 cars
Total base service	56 cars plus two incline cars	

Additional cars required for morning and evening rush hour service:

	Morning	**Evening**
Duluth local and Park Point	25 cars	41 cars
Interstate	4 cars	4 cars
Superior local	3 cars	3 cars
Total	32 cars	48 cars

During winter months, "winter extras" were added to morning and evening rush hour service on certain lines in order to maintain scheduled service in the harsh winter weather; additional cars required were:

	Morning	**Evening**
Piedmont-East 4th St.	1 car	1 car
"Main Line"	10 cars	4 cars
Allouez	1 car	3 cars
Billings Park-Broadway	—	1 car
Total	12 cars	9 cars

A unique feature was the mid-day rush hour service (the same in both summer and winter) which required additional cars.

"Main line": 10 minute service to 71st Ave. W. and Grand Ave.	6 cars
West Duluth-Aerial Bridge: 10 minute service to 32nd Ave. W. and Superior St.	4 cars
East End-Allouez: 10 minute service over entire line	3 cars
Total	13 cars

Thus the greatest number of cars was required during the evening rush hour in the winter months: 113 cars.

Car Assignments

We have selected the February, 1918, car assignment listing as an interesting example of the distribution of DSR's equipment between Duluth and Superior.

Duluth Division

104 passenger cars: 151-162, 185-215, 222-254, 255-256 (Highland Ave. line), 257-262 and 265-284.

2 incline cars: 220-221.

1 private car: 42 "St. Louis" (out of service).

13 work cars: Supply car 1/88; Wrecking car 1/141; Tower car 1/67; Flat Cars 1/64, 2/65, 3/96, 4/97, 5/142, 7/144, 8/145/ and Snow Plows 1/139, 3/140, and 4/146.

Park Point Division

4 passenger cars: 285-288.

2 work cars: Tower car 3/148 and Snow Plow 5/147.

Superior Division

10 passenger cars (single truck): 47, 52, 53, 57, 59, 73, 75, 79, 82 and 131.

27 passenger cars (double truck): 163-184, 216-219 and 263.

4 work cars: Flat car 6/143, Snow Plow 2/66, Tower car 51 and Supply car 62.

Early Duluth-Superior Service

The only connections between the two cities originally were by the railroads. There were no public bridges across the river or the bay. Beginning May 7, 1893, DSR began operating the ferry boat "Estelle" between Rice's Point and the south end of the Tower Bay slip (near 3rd St. and Tower Ave.) as well as Connor's Point; connections with SRTR cars were made at both points. SRTR also had a joint arrangement with a ferry service which operated from Connor's Point to Arthur Ave. and possibly to a dock at the foot of 3rd Ave. W. Apparently there was competition of a not-too-happy nature between these two ferry boat operations.

When ice halted ferry boat operation in December, 1893, DSR placed in operation an electric ferry sled designed by Herbert Warren, DSR's General Manager. The sled consisted of a substantial "scow" under which were located regular sleigh runners; on the deck was a house fitted up like a streetcar. An electric motor on the shore operated a drum over which was run an "endless" wire cable which was attached to the sled, thus pulling the sled back and forth across the ice of the bay. The first operation of this sled took place December 22, 1893.

Apparently the sled was not the answer to winter operations, for in December, 1894, SRTR constructed a temporary timber trestle across the bay; about 1,000 ft. long, a single track was laid on the top which was about 3' above the surface of the ice. Thus SRTR cars could cross to the Duluth side of the bay. In the early spring the trestle was removed. It was rebuilt during the winters of 1894-1895, 1895-1896, and 1896-1897.

Duluth-Superior Bridge Problems

The bridge was the victim of several ship collisions which greatly hindered traffic between the two cities. Three major incidents are interesting from an operational standpoint.

On August 11, 1906, the steamer "Troy" rammed the draw span of the bridge, knocking it into St. Louis Bay. DSR built a temporary branch track from the Interstate line to the dock front. Ferry boat service was begun to Superior and continued until the repaired bridge was re-opened on September 24, 1908.

Embers from the great forest fires of October, 1918, started a fire which burned out the Duluth approach to the bridge on October 12th. Service was resumed over one track November 7th and on the other track November 20th.

On November 21, 1924, the fixed span of the bridge was knocked out when it was struck by the steamer "Farr". Ferry service was begun 2:00 P.M. Sunday, November 24th with the boat "Fashion" which continued until December 19th when the span was replaced and opened for rail traffic. The first track was ready at 6:10 P.M. and the second track at 11:00 P.M.

Duluth: Superior St. – 3rd Ave. W. to 8th Ave. W.

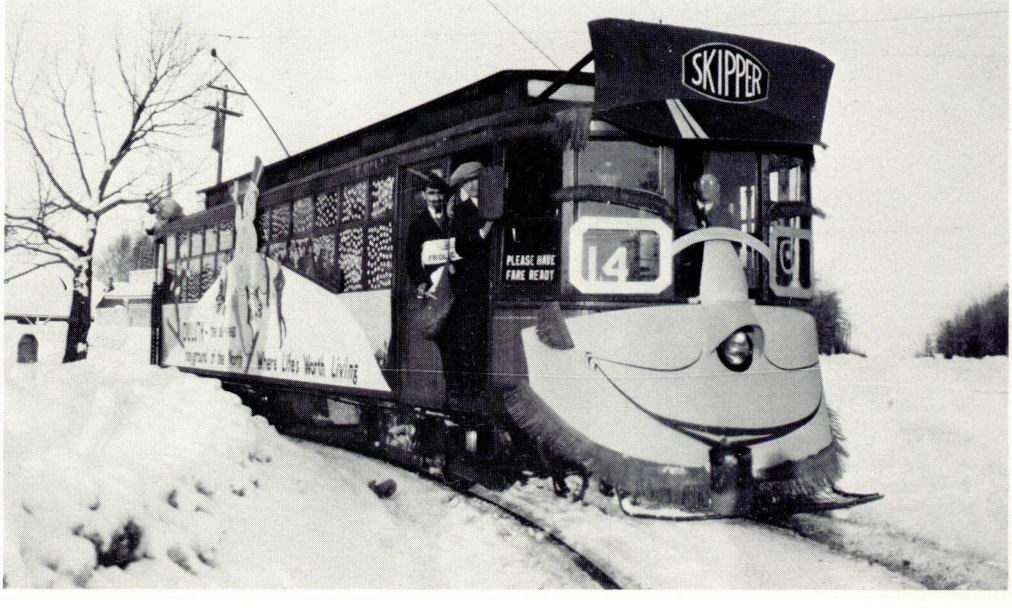
All cars operating in Duluth, other than the incline railway and Highland Ave. line cars, passed through this section of the city. DSR was well aware that a serious fire or accident at this location would cause a tie-up of nearly all car movements in the city. On several occasions DSR and the City of Duluth planning agencies proposed solutions to the problem. However the great stone bluffs west of Mesaba Ave. proved too costly to build through and too steep to operate over. No practical solutions were forthcoming and nothing was ever done. Apparently the type of catastrophe feared by DSR never occurred either.

Superior and the "Wm. Crooks"

The "Wm. Crooks" was the first steam locomotive to operate in the State of Minnesota, and had been preserved, together with two cars (one baggage and one passenger), in operating condition by the Great Northern Ry. On September 1, 1924, throngs of people gathered at 3rd St. and Tower Ave. to watch the transfer of the "Wm. Crooks" and its two cars from the L. S. T. & T. Ry. tracks to DSR's Tower Ave. streetcar tracks. The train steamed up Tower Ave. to the Fairgrounds at 46th St. where it was placed on exhibition during Fair Week.

Above: Superior Rapid Transit Ry. car 126 heading toward Duluth on the temporary trestle across St. Louis Bay. (Wayne C. Olsen collection)

Left: View of the wrecked span of the Duluth-Superior Bridge from the east side and south end of the span. In the background can be seen the swing span with operator's control house. Taken November 22, 1924. (Joe Hutchinson collection)



Right: A streetcar decorated for the first year of the "Winter Frolics", 1927. The sign on the car sign reads: "Duluth — the all-year playground of the North" "Where Life's Worth Living". (Wayne C. Olsen collection)

Destination Signs

Early Duluth cars originally carried four two-faced board signs which were inserted in brackets on the roof of the car: one on each end and one on each side. A bracket mounted on the front dash allowed for the hanging of special signs not regularly used, such as "Ball Park" and "To Car House Only".

Superior cars originally carried sign boards similar to Duluth cars except that no signs were carried on the sides of the car roof, just the ends. In addition a vertically hung, 8" x 30" board was used, painted a specific color to designate the line the car was operating on; examples were: Green = "Billings Park (Steel Plant) line; Yellow = "South Superior" line; Red = "East line; and Stripes (colors not mentioned) = "Interstate" line.

Single truck cars purchased in 1893 and 1894 were equipped with a four-faced, revolving wooden sign mounted on the roof, one at each end and one on each side; the faces were painted various colors to more quickly identify the route of the car.

In July, 1893, Duluth St. Ry. began hanging lanterns on the right-hand front dash of each car with various colored lantern chimneys identifying the routes of the cars.

Line	Light Color	Destination Sign Boards Letters — Background
"West Duluth-East End"	None	?????
"Lakeside"	Yellow	Silver on Yellow
"Lake & Garfield"	Blue	??? on Blue
"E. 4th St."	Red	Black on Red
"Woodland"	Green	??? on Green

The lanterns were replaced, beginning in 1897, with permanently installed electric marker lights on the right-hand front dash, utilizing changeable colored lenses.

Beginning February 26, 1903, DSR began the use of transparent glass signs which could be inserted in brackets in front of the deck roof windows of single truck cars. Lights inside the car illuminated the signs at night. Various colors of glass were used to denote the various lines. Examples were: "Woodland": white letters on green; and "East Fourth": white letters on red (formerly used black letters on white).

In January, 1903, the destination signs on the "Interstate" line were changed to read "Duluth & Superior" instead of "Interstate".

Double truck cars built by TCRT for DSR were equipped with the roll sign boxes installed in the deck roof on both sides near the rear of the car and one at the front. These were illuminated by interior lights at night. Black letters on a white background were used as on TCRT. However the electric marker lights on the right-hand front dash were retained on these cars utilizing the changeable colored lenses.

In 1919 it was decided to replace the colored marker light system with the installation of roller sign boxes mounted in a right-hand front platform window which utilized large 10" high characters and was illuminated at night. This system went into effect January 8, 1920. Duluth destinations were given numbers while Superior destinations were given letters. These signs had white characters on a black background. Examples of route and destination sign lists are provided.

1919 Destination Sign Lists

Duluth Division
- WEST DULUTH
- E. 4th & GARY-N. DUL.
- MORGAN PARK
- E. 4th to 92nd AVE. W.
- FAIRMOUNT PARK
- E. 4th & 57th AVE. W.
- E. 4th to 39th AVE. W.
- WOODLAND
- HUNTERS PARK
- 3rd AVE. E.
- TO CAR HOUSE ONLY
- W. DUL. to AERIAL BRIDGE
- 32nd AVE. W. & SUP. ST.
- LESTER PARK
- 45th AVE. E.
- EAST END
- KENWOOD AVE.
- E. 9th ST.
- PIEDMONT & W. 4th
- DULUTH & SUPERIOR
- NOT IN SERVICE

Superior Division
- DULUTH & SUPERIOR
- EAST END
- SO. SUPERIOR
- BILLINGS PARK
- BILLINGS P'K. & BROADWAY
- ALLOUEZ
- TO CAR HOUSE ONLY
- CHARTERED
- NOT IN SERVICE
- BALL PARK
- SPECIAL
- SHOW GROUNDS

Cab Window Signs – January 1, 1928

Duluth local cars

45 45th Ave. E. & Superior St.
32 32nd Ave. W. & Superior St.
16 St. Paul Ave. & Woodland Ave.
61 61st Ave. E. & Superior St.
8 8th Ave. W. & Superior St.
7 Austin St. & Woodland Ave.
24 24th Ave. E. & Superior St.
11 St. Marie St. & Kenwood Ave.
13 13th Ave. E. & E. 9th St.
10 10th St. & 23rd Ave. W.
0 26th Ave. W. & Superior St.
1 62nd Ave. W. & Raleigh St.
2 Morse St. & Lake Ave. S.
21 21st Ave. W. & Superior St.
3 3rd Ave. E. & Superior St.
39 39th Ave. W. & Grand Ave.
17 57th Ave. W. & Grand Ave.
57 57th Ave. W. & Medina St.
4 24th Ave. E. & E. 4th St.
9 McCuen St. & Commonwealth
14 West Blvd. & 4th St. (Mrgn. Pk.)
92 92nd Ave. W. & Grand Ave.
71 71st Ave. W. & Grand Ave.
22 Kent Road & E. 8th St.
20 Duluth Approach to D-S Bridge
37 37th Ave. W. & Oneota St.
12 Armory Loop
52 52nd Ave. E. & Wyoming St.

Interstate Cars (Superior local cars use alphabetical only)

S 63rd St. & Tower Ave.
T Broadway & Tower Ave.
G 21st St. & Grand Ave.
L 3rd St. & Grand Ave.
B Billings Park Loop
H Hill Ave. & Belknap St.
N 21st St. & Tower Ave.
C 4th St. & Ogden Ave.
J Belknap St. & Tower Ave.
F 46th St. & Tower Ave.
A McBain Ave. & 2nd St.
E Robertson Ave. & 4th St.
K Catlin Ave. & Belknap St.
Y Ogden Ave. & 3rd St.
D Superior Approach to Dul.-Sup. Brdg.
Not In Service
Chartered
Show Ground
24 24th Ave. E. & Superior St.
3 3rd Ave. E. & Superior St.
0 26th Ave. W. & Superior St.
2 Morse St. & Lake Ave. S.
12 Armory Loop
20 Duluth Approach to Dul.-Sup. Brdg.
71 71st Ave. W. & Grand Ave.
52 52nd Ave. E. & Wyoming St.
45 45th Ave. E. & Superior St.

Car 304 pulling in the Superior carhouse on 4th St. at Ogden Ave. The destination sign is a combination of the two separate systems worked out for the lightweight cars. The Birney cars also had a separate destination sign roll system. (Wayne C. Olsen collection)

TABLE 1. HORSECARS AND ORIGINAL ELECTRIC PASSENGER AND SERVICE CARS

Cars	Numbers	Builder	Date Received	Type		Length Body	Length Overall	Width	Trucks No.	Trucks Type	Motors No.	Motors Type	Controller No.	Controller Type	Weight	Seats	Capa.	Note
Duluth Street Railway																		
1	1	?	Nov. 1882	Closed Horsecar	W				1	—								
2	2-3	?	Jul. 1883	Closed Horsecar	W				1	—								
12	4-15	John Stephenson Co.	Apr. 1886	Closed Horsecar	W				1	—								
3	16-18	?	May 1888	Closed Horsecar	W				1	—								
12	19-30	LaClede Car Co.	Oct. 1890	Closed Psgr.	W	16'0"	25'6"	7'9"	1	McGuire A60	2	T-H F30	2	T-H Rheostat	12500	=	20	
7	31-37	LaClede Car Co.	Mar. 1891	Closed Psgr.	W	16'0"	25'6"	7'9"	1	Bemis	2	T-H SRG30	2	T-H Rheostat	?	=	26	
6	38-43	LaClede Car Co.	Jul. 1891	Closed Psgr.	W	18'7"	29'3"	8'0"	1	McGuire	2	T-H SRG30	2	T-H Rheostat	15500	=	26	
3	44-46	Northern Car Co.	Jul. 1891	Closed Psgr.	W	18'7"	29'11"	7'10"	1	McGuire	2	T-H SRG30	2	T-H Rheostat	15500	=	26	1
16	47-62	LaClede Car Co.	May-Jul. 1892	Closed Psgr.	W	22'0"	32'9"	8'0"	1	McGuire	2	T-H SRG30	2	T-H Rheostat	18000	=	30	2
4	63-66		Jan. 1892															3
1	67	Northern Car Co.	Apr. 1892	12 Bench Open Psgr.	W	35'6"	36'10"	7'10½"	2	Bemis	2	T-H SRG30	2	T-H Rheostat		×		¾
20	68-87	LaClede Car Co.	Oct. 1893	Closed Psgr.	W	22'0"	32'9"	8'4"	1	McGuire and Baltimore	2	T-H and Westinghouse	2	Rheostat	18000	=	30	5
5	?	?	?	Drag Plows					1			None		None				6
5	?	?	?	Salt Cars					1			None		None				6
1	1/88	Duluth St. Ry.	1895	Supply Car	W	18'0"	21'1¾"	6'9"	1	McGuire	2	T-H SRG30	2	T-H Rheostat				7
2	89-90	Brownell Car Co.	1890	Closed Psgr.	W	16'0"	24'0"	7'6"	1	Brownell	2	?	2	Rheostat		=		8
4	91-94	Brownell Car Co.	1891	9 Bench Open Psgr.	W	24'0"	25'0"	7'6"	1	Brownell		None		None		×		9
1	95																	4
Douglas County St. Ry. / Superior Rapid Transit Ry.																		
4	?	Pullman's Palace Car Co.	1889	Closed Horsecar		14'0"	21'0"	7'4"	1	—								
2	101-102	John Stephenson Co.	May-Jun. 1890	Closed Psgr.	W	16'0"	24'0"	7'11"	1	?	2	T-H F20	?	Rheostat				10
2	103-104	Pullman's Palace Car Co.	May-Jun. 1890	Closed Psgr.	W	16'0"	24'0"	7'11"	1	?	2	T-H F20	?	Rheostat				10
1	105	Pullman's Palace Car Co.	Sep.-Oct. 1890	Closed Psgr.	W	16'0"	24'0"	7'11"	1	?	2	T-H F20	?	Rheostat				10
1	106	Pullman's Palace Car Co.	Dec.-Jan. 1890-1891	Closed Psgr.	W	16'0"	24'0"	7'11"	1	?	2	T-H F20	?	Rheostat				10
1	107	Pullman's Palace Car Co.	Dec. 1890 Jan. 1891	Closed Psgr.	W	14'0"	21'0"	7'6"	1	?	2	T-H F20	?	Rheostat				10/11
2	1-2	Thomson-Houston Co.	1890	Snow Sweeper	W		27'6"		1	—	2	T-H WP50	2	Rheostat				12
1	3	Thomson-Houston Co.	Jan. 1891	Snow Sweeper	W		28'0"		1	—	2	T-H WP50	1	Rheostat				13
3	4-6	Pullman's Palace Car Co.	1889	Closed Psgr.	W	14'0"	21'0"	7'4"	1	Pullman		None		None				14/18
2	108-109	Pullman's Palace Car Co.	Oct.-Dec. 1891	Closed Psgr.	W	18'3"	25'7"	7'6"	1	?	2	?	?	Rheostat		=		15
10	110-119	Northern Car Co.	Oct.-Dec. 1891	Closed Psgr.	W	18'9"	26'9½"	7'3½"	1	McGuire 19A	2	T-H WP30	?	Rheostat	15500	=		16
5	120-124	St. Louis Car Co.	Jun. 1892	Closed Psgr.	W	18'8½"	26'3"	7'7"	1	McGuire 19A	2	T-H WP 30	?	Rheostat	15500	=		16
6	125-130	LaClede Car Co.	1893	Closed Psgr.	W	20'11½"	29'3"	7'6"	1	McGuire 19F	2	T-H WP30	?	Rheostat	15500	=		16
6	131-136	American Car Co.	1894	Closed Psgr.	W	22'2"	33'2"	7'11"	1	McGuire 19F	2	T-H WP30	?	Rheostat	18000	=		16
2	?	?	?	Snow Plows	W				1	—		None		None				17
2	?	?	?	Salt Cars	W	10'0"	16'0"		1	—		None		None				17

6. Equipment

Horsecars and original electric passenger service cars: Table 1. Abbreviations used: underframe: W = wood and S = steel; seats: X = cross (transverse) and = = longitudinal. The wheelbase dimensions for the various truck types are:

McGuire A 60 "Hubbard"	6'0"
McGuire	7'6"
McGuire 19A "Columbian"	7'0"
McGuire 19F	7'6"
Baltimore	7'6"
Bemis (single)	7'0"
Bemis (double)	5'4"
Brownell	7'0"
See Note 10	6'0"

The Thomson-Houston motor model numbers indicated the total horsepower in a set of two motors. Thus an F 20 motor was of 10 h.p., a WP 30 motor of 15 h.p.

Notes to Table 1

1. Car 42 was rebuilt during October and November, 1896, into the Private Car "St. Louis". Interior details included a highly polished quarter sawed oak floor covered with Oriental rugs, inlaid oak ceiling, polished cherry panel work around the sides, highly polished brass metal work, five incandescent lights in the ceiling fitted with cut glass shades, twenty incandescent lights with ground glass globes on the window posts, posts, six electric heaters, and twelve willow chairs of different designs furnished with silk covered cushions. An ice-box and buffet were later installed. The curved vestibule windows were made of heavy French plate glass. The exterior color was nearly the same as the regular yellow of the ordinary cars; there was no exterior decoration except the name "St. Louis" emblazoned on each side panel. Friends of the management and others interested in the company used the car for entertainment and sightseeing around the city. Places visited most frequently were the Billings Park Club House, Northland Country Club, Woodland, and Lester Park (for snowshoeing and skiing parties).
2. These cars were for the "Lake & Garfield" line. Car 51 was converted into a Tower Car during 1892.
3. DSR records are missing on 63-67. An equipment record sheet dated 1912 lists only that four cars, 63-66, were purchased in January, 1892, and that one car, 67, was also purchased in January, 1892.
4. Thomas Lowry became interested in the operations of the Highland Improvement Co. and felt that a large open passenger motor car would stimulate riding during the summer months. On June 28, 1892, the car arrived; presumably this was Twin City Rapid Transit Car 548, one car of an order just received by them and apparently diverted to HIC by Lowry. This was the first and only car of its type in Duluth or Superior. The car was acquired by DSR in July, 1894, with the purchase of the Highland Ave. line from HIC. It was listed as number 67 on the bill of sale, but was always listed in DSR records as number 95.
5. McGuire truck and Westinghouse #3 motors: 69, 73, 76, 78, 79. McGuire truck and T-H SRG 30 motors: 70, 72, 80-87. Baltimore truck and Westinghouse #3 motors: 68, 71, 74, 75, 77.
6. These ten cars were included in the list of miscellaneous equipment in the Ford Bacon & Davis report of March, 1900. The Drag Plows were noted as "not used", and the Salt Cars as "old horse cars".
7. Car 31 was destroyed by fire in 1895. The truck, motors and controllers were salvaged and used by DSR in building this car. It was listed as a Supply Car and Wrecking Car in 1900, and in later years also used as a sand car during the fall seasons on the hill lines in Duluth, sanding rail made slippery by falling leaves.
8. Originally built as "Woodland" and "Duluth" for the Woodland line of the Motor Line Improvement Co.
9. Originally built as 1-4 for the Woodland line of the Motor Line Improvement Co. DSR records state that the truck, motors and controllers salvaged from car 30, which ran off the end of the Lake Ave. line into the ship canal September 17, 1893, were used to motorize 92. However a newspaper article dated June 1, 1893 reported that open trailer 92 was being motorized for use on the Garfield Ave. line as the trailers had been little used owing to the heavy grades.
10. During the period May-July and October, 1890, DCSR purchased from the Northwest Thomson-Houston Co. six sets of car trucks (make not specified) and sixteen Thomson-Houston F20 motors for these cars.
11. Of the four original horse cars, apparently one was rebuilt as this motor car.
12. These were double end snow sweepers; each broom assembly was powered by one T-H WP 50 motor.
13. This was a single end sweeper, the broom assembly powered by one T-H WP 30 motor.
14. The three remaining original horse cars were converted to these trailers.
15. The records available do not indicate the electrical and mechanical equipment on these cars; in service as of 1894, by early 1900 the motors and controllers had been removed. DSR records list the trucks as having a 6'0" wheelbase.

16. During a valuation study made in 1922 by A.L. Drum & Co., an engineer located George Ingersoll, superintendent of SRTR during the 1890's who still had in his possession notes on equipment details as of 1894. The dimensions listed in this table are from his notes. DSR's measurements disagree:

	Length		Width
	Body	Overall	
108-109	18'0"	26'0"	7'6"
110-119	18'7"	27'7"	7'7"
120-124	18'7"	27'7"	7'7"
125-126, 128, 130	20'0"	30'9"	7'11½"
127, 129	20'0"	29'9"	7'11½"
131-136	22'0"	33'4"	7'11"

17. The Ford Bacon & Davis report of March, 1900, listed these cars as "push type snow plows" and "salt cars (old horse cars)". Supt. Ingersoll listed the salt cars as in storage as of 1894, and also described them as old horse cars.
18. Supt. Ingersoll stated that during October, 1895, one of these cars was converted into a Private Car; the seats were removed and carpeting and chairs installed. The car was motorized and re-numbered 100. By 1900 the motors and controllers had been removed. DSR data list the same dimensions and truck (with a 6'0" wheelbase). One of the other two trailers was listed on DSR records as passenger car number 99, with the same dimensions and truck (6'0" wheelbase) and without motors or controllers.

Subsequent Modifications

Duluth St. Ry. equipment

Cars 19-62 as received from the builders had open front and rear platforms; 68-87 had the front and rear dashes equipped with windows but there were no vestibule doors. The Minnesota legislature passed a law requiring enclosed platforms for the motormen in early 1893 but the law was appealed to the Minnesota supreme court. During March, 1893, DSR decided to build vestibules on most of its cars, and the first rebuilt car was reported ready for its trial run July 15, 1893. The supreme court upheld the legislature and established a deadline of November 1, 1895, for all cars operated during the winter months to be equipped with vestibules. DSR shops were hard-pressed to rebuild all of the cars selected and cars were being vestibuled as late as November, 1896. By 1900 all but eight cars had been vestibuled; the eight were of the 47-62 series cars. Cars 89 and 90 were never vestibuled. Between August 13, 1900, and December 31, 1901, the remaining eight cars were equipped with vestibules as increased traffic required more cars.

Walter J. Smith was DSR's master mechanic at this time. The Duluth newspaper reported that DSR's shops and storeroom were an example of perfection; absolute order and cleanliness prevailed.

DSR decided to convert some of its cars to single end operation for use on the West Duluth & Lake Ave. line. The first rebuilt car emerged from the shops on June 20, 1899. In all, twenty-two cars were converted to single end operation from 1899 through 1905: 39, 40, 43-46, 54, 69-73, and 78-87.

During 1899-1901 and 1904-1907 the rheostat controllers on certain cars were replaced with K-2 series-parallel controllers. These were: 29, 38-62, 68-87 and Supply Car 1/88.

Subsequent Modifications

Superior Rapid Transit Ry. equipment

Apparently by late 1893 the motors and controllers had been removed from 101-107 and these seven cars used as trailers in addition to the three existing trailers 4-6. By 1894 all ten trailers were in storage.

Cars 131-136 were received from the builder with vestibuled platforms. The first of the older cars to be rebuilt with vestibules was placed in service October 29, 1895. Additional cars were being rebuilt with vestibules as of November, 1896. A total of twenty-eight cars were eventually equipped with vestibules: 100 and 110-136.

On July 26, 1899, the local newspaper reported that cars were being repainted, using the same color scheme as before: yellow and green body with red truck frames.

Certain cars were converted from 3'6" gauge trucks to 4'8½" gauge trucks during 1898-1899 for use on the "Interstate" line.

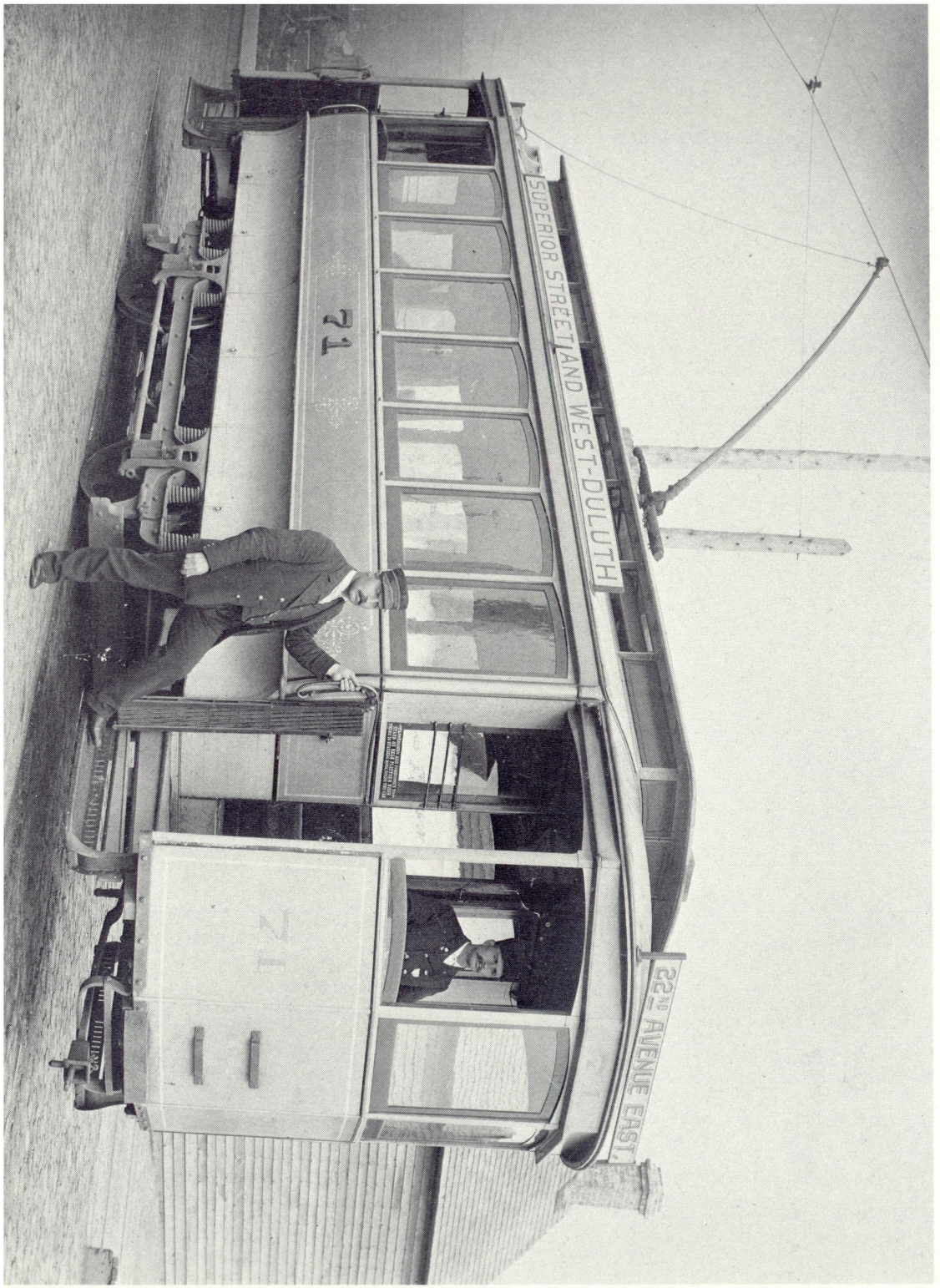
SRTR cars acquired by DSR – August, 1900

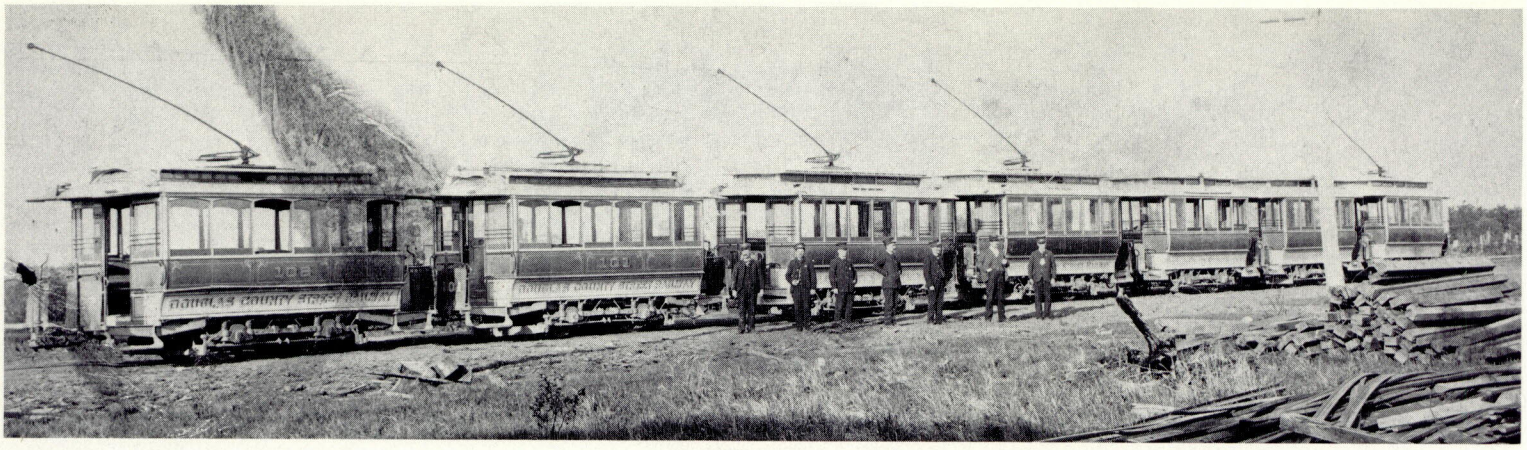
When DSR took over the property they included thirty-eight passenger cars and two service cars in their roster of equipment. Those cars not included were apparently disposed of without the dispositions being recorded. All passenger cars retained their existing numbers as they fitted into the DSR numbering system. The twenty-seven cars currently in service, 110-136, were all converted from 3'6" gauge trucks to 4'8½" gauge trucks, those not being converted earlier being changed during 1901-1902. Probably all or most of them were upgraded and painted DSR colors in a car improvement program begun in 1901. During 1901-1093 all twenty-seven cars had the rheostat controllers replaced with K-2 series-parallel controllers; each received one controller with the exception of 118, 124, 130-136 which got two controllers. During 1903 eleven cars were rebuilt but details of the rebuilding were not specified.

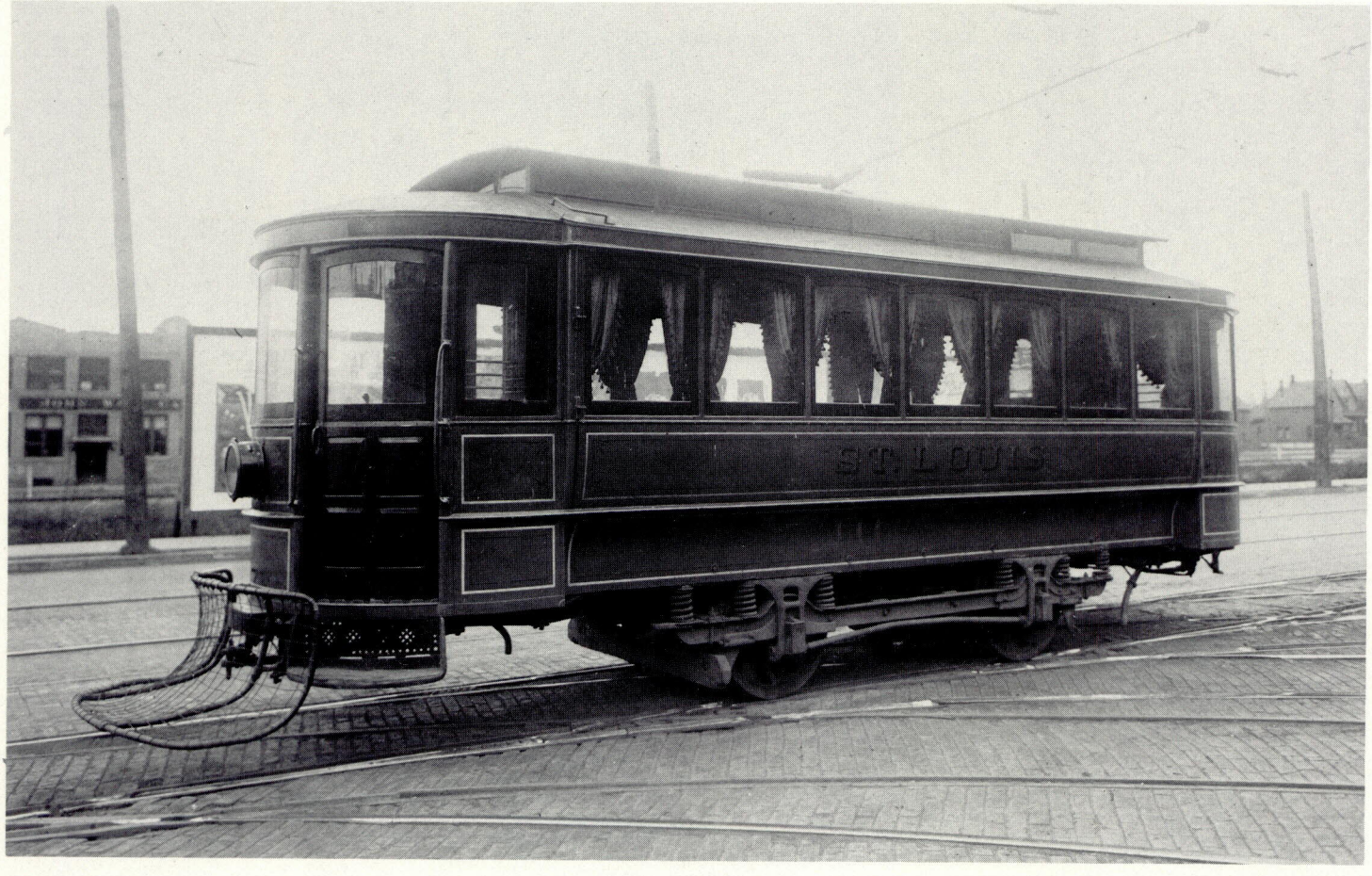
Cars 99-109 were probably never converted to standard gauge trucks, and were moved during 1901 to the Endion carhouse in Duluth for storage. Eight of the eleven cars were still in storage as of June 30, 1911.

Snow Sweepers 1-2 were re-numbered 137-138. Apparently Snow Sweeper 3 was disposed of along with the other miscellaneous equipment.

Right: Horsecar 5 at 1st Ave. W. and Superior St., Duluth, 1889.
Below: DSR 71 as originally built, taken in 1895 on Raleigh St. in West Duluth.
(Both photographs Wayne C. Olsen collection)





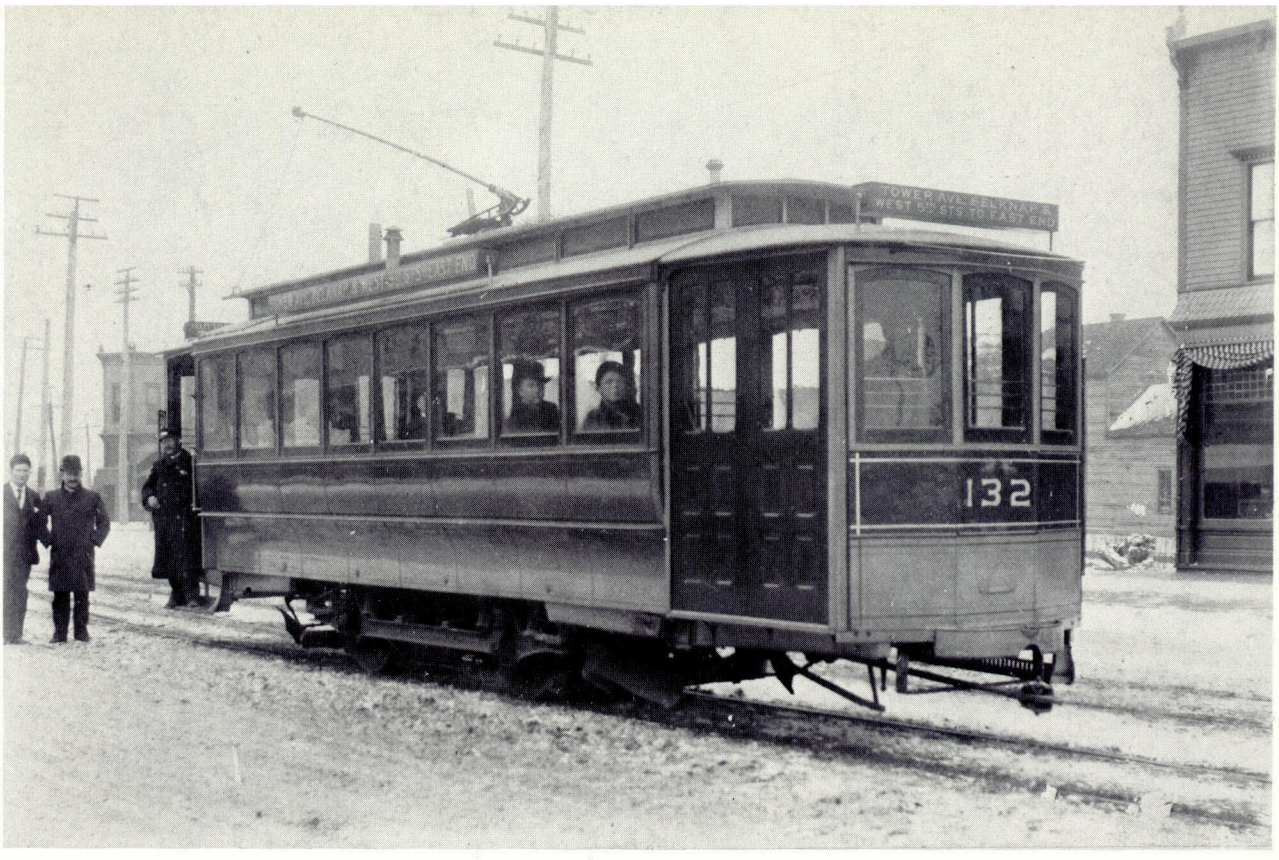


Above: Douglas County St. Ry. cars 102, 101, 104, 105, 4, ?, and 107 (left to right) lined up at the Superior carhouse, Catlin Ave. and Belknap St., about 1890.

Center: Private car "St. Louis" outside the Duluth carhouse shortly before it was retired.

Below: Car 72 derailed about 7 a.m. July 28, 1901, on the trestle at 33rd Ave. W. and Superior St., Duluth. It was repaired and placed back in service.

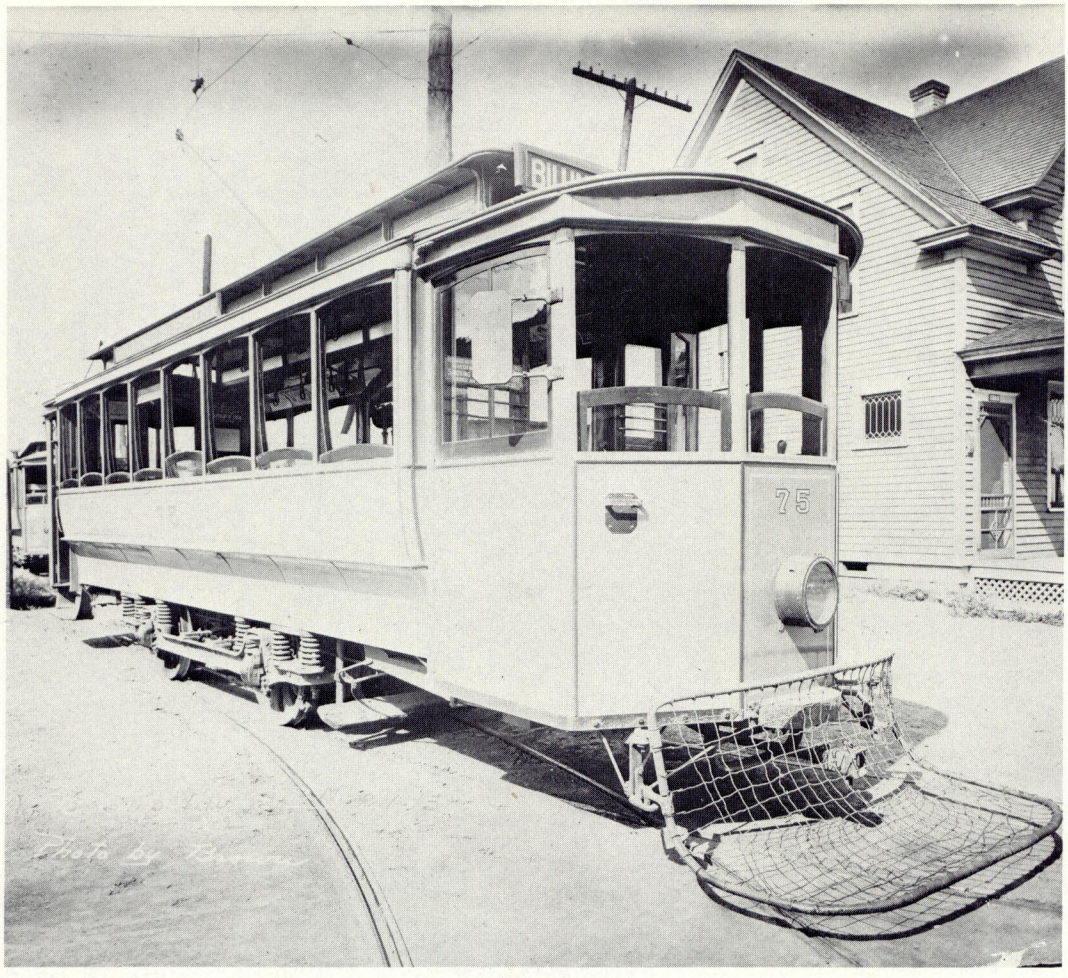
(All photographs Wayne C. Olsen collection)



Above: Superior Rapid Transit Ry. 132 as originally built, photographed about 1895. Destination sign reads: "Tower Ave. Belknap & West 5th Sts. To East End".

Right: Interior of car 132 looking toward the front. Note the kerosene lantern by the right front plate glass mirror with chimney extension upward through the deck roof.

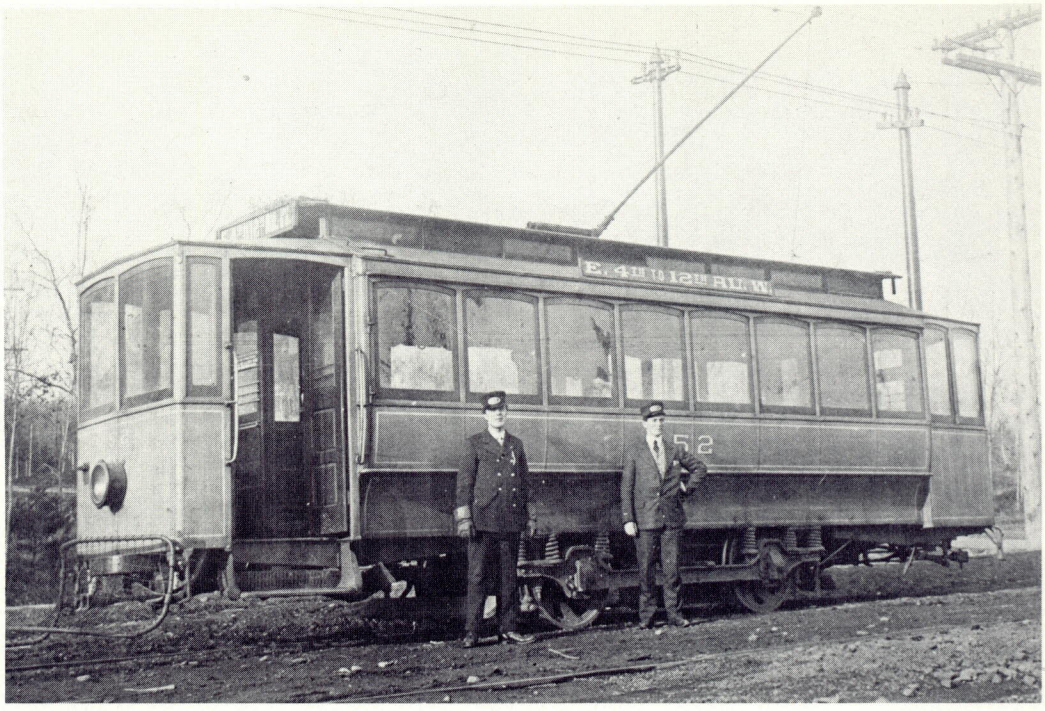
(Both photographs Wayne C. Olsen collection)



Above: Car 75 illustrates how the vestibules were fully enclosed, to comply with state law, for double end operation. Taken at the Superior carhouse on August 1, 1913.

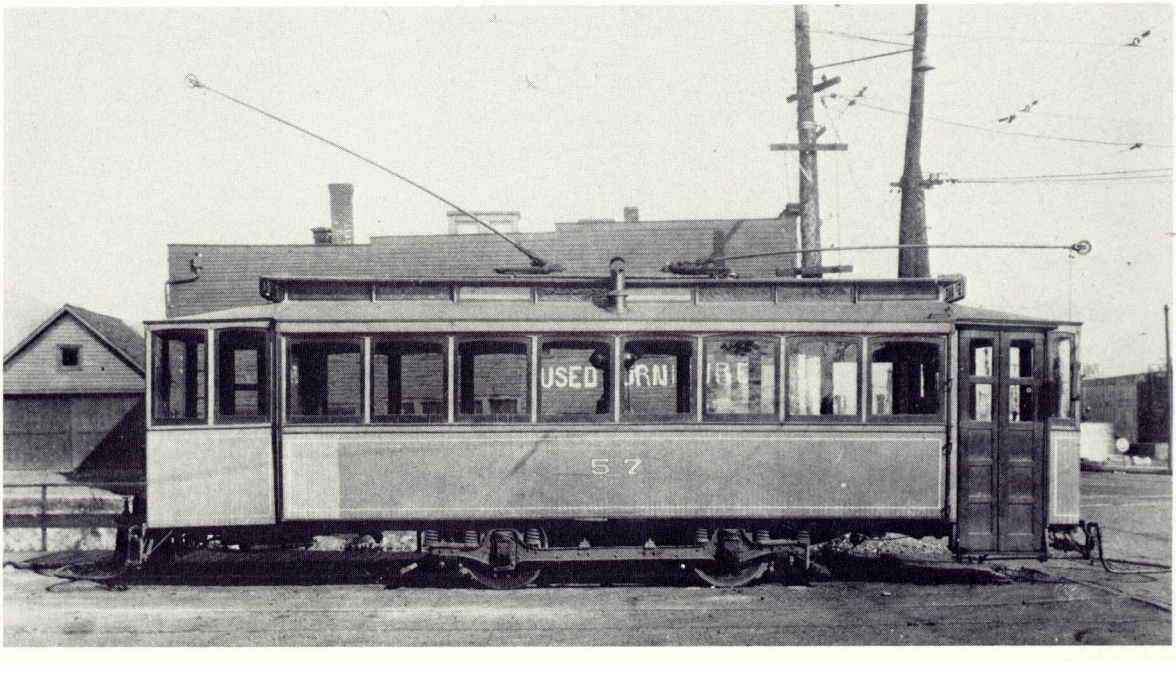
Below: Another view of car 75 showing the vestibule, door and step construction details (right portion of the step is slightly damaged).

(Both photographs DSR; Wayne C. Olsen collection)



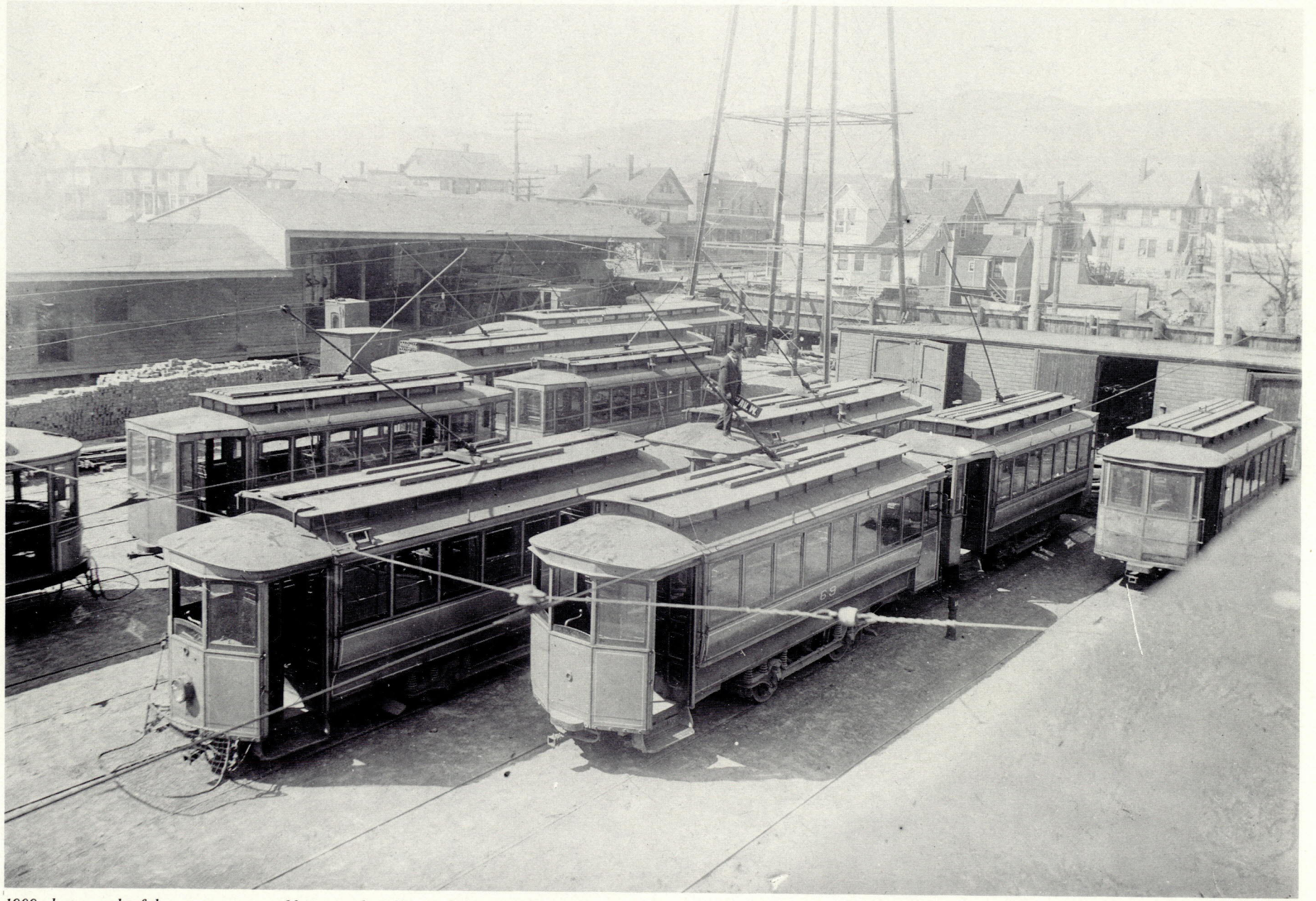
Car 52 rebuilt with vestibules for double end operation.

Car 80 derailed on the 21st St. viaduct of the "Billings Park" line, Superior, in 1914 and was subsequently retired by burning.



Car 57 rebuilt in 1919 for double end operation on the "West 4th St." line, Duluth.

(All photographs Wayne C. Olsen collection)



1909 photograph of the car storage yard between the office and shop buildings at the Duluth carhouse, looking north. The single truck closed cars are (left to right): 44 and 45, 76 (?) and 68, 69 and 46, and 114. (DSR; Wayne C. Olsen collection)

Disposition of Duluth and Superior horsecars and original electric cars

The only recorded disposition of DSR horsecars were the seven cars sold to the Minnesota Point St. Ry.: August, 1890: 4 and 14; December, 1891: 1; and May, 1892: 5, 7, 10 and 13.

1892

According to DSR accounting records six cars were "sold" to the Lakeside Ry. Co. December 1st: 30, 39, 40, and 44-46. Apparently this was a paper transaction only.

1893

Car 30 ran off the end of the Lake Ave. line into the ship canal September 17th. Only the truck, motors and controller were salvaged.

1895

Destroyed by fire: 31.

1900 and 1902

Sold to Interstate Traction Co. (Park Point): 91-94.

1903

Sold to St. Cloud, Minn.: 33, 36, 105, 108 and 109.

1904

95 was scrapped except for the underframe, trucks and motors which were used in the construction of Tower Car 1/67.

1906

Sold to the Duluth Belt Line Ry.: 25 and 28.

Sold to Interstate Traction Co. (Park Point): 110. 117 and 122.

1907

Sold to individuals: 26 and 27.

1909

87 was wrecked on 3rd St. and destroyed in December.

1910

Sold to Granite City Ry. (St. Cloud): 69, 71, 76, and 77.

Sold to Aberdeen Ry. (S.D.): 46, 113, 115, 119, 120, 125, 126 and 129. (129 had been equipped with snow plow blades in 1908 for use on the recently opened "Allouez" line in Superior.)

Sold to an individual: 121 and 123.

Burned and destroyed: 74 and 114.

Converted to a Tower Car: 112.

1911

Sold to Aberdeen Ry.: 116 and 127.

Burned on the Highland Ave. line: 43.

Given to an individual: 78.

Converted to a Tower Car: 111. (Both 111 and 112 were converted for use in rebuilding the Billings Park, South Superior and Belknap lines in Superior.)

1912

Sold to Duluth Machinery Co.: 44, 45, 48, 54-56, 58, 60, 68, 70, 72, 81, 83, 84, 86, 112, 130, and 132-135.

Date of Disposition unknown but probably during the 1901 to 1912 period:

Sold to Grand Forks Transit Co. (N.D.): 19 and 102.

Sold to individuals: 20, 22, 24, 29, 38, 106 and 118.

Given to individuals: 21, 99, 100 and 103.

Burned at the Incline Ry.: 23.

Sold to the Normal School for waiting station: 101.

Sold to the Lakeside Club: 104 (waiting station) and 107.

Destroyed: 32, 35, and 37.

Wrecked and destroyed: 111 and 128.

Burned: 124

Destroyed: Snow Sweepers 137 and 138.

Destroyed: 34, 89 and 90.

1913

Sold to an individual: 40.

Wrecked and burned: 136.

1914

Wrecked and burned (jumped the track on 21st St. viaduct in Superior): 80.

1915

Sold to Duluth Belt Line Ry.: 39 and 41.

Converted to a Supply Car (for use in Superior): 62.

1917

Scrapped: 49 (trucks and motors to Flat Car 7/144), 50 (trucks and motors to 42), 61 (trucks and motors to Flat Car 6/143) and 85 (trucks and motors to Flat Car 5/142).

1918

The body of 42 "St. Louis" (Private Car) with trucks and motors from 50 was sold to the Duluth Iron & Metal Co.

1919

52 and 57 were rebuilt during May and June to double end, one-man, pay-enter, cars for shuttle service on the West 4th St. line; they retained the original equipment: one McGuire truck, two SRG 30 motors, and two K-2 controllers.

1920

Converted to a Supply Car during September:131.

1923

Bodies scrapped; motors and controllers stored; truck and floor used to build ash car trailers: 47, 51 and 79.

Sold to West End Scrap Iron & Metal Co.: 53, 59, 62, 73 and 75.

Body sold to an individual; truck, motors and controller sold to West End Scrap Iron & Metal Co.: 82.

1931

Retired: 131.

Carbodies sold: 52 and 57.

TABLE 2. PASSENGER CARS BUILT BY THE TWIN CITY RAPID TRANSIT CO. FOR DULUTH ST. RY.

Cars	Numbers	TCRT Shops	Date Built	Class	Under Frame	Trucks No.	Trucks Type	Motors No.	Motors Type	Controller	Weight	Note
12	151-162	31st St.	Aug.-Oct. 1900	B-3	W	2	Brill 01	4	G.E. 67	K-6	39680	1
1	163 (63)	31st St.	Oct.-Nov. 1901	Incline	W	1	Peckham 7B	4	G.E. 67	K-6	28000	2
15	163-177	31st St.	Apr.-Jun. 1904	D-7	W	2	Brill 04	4	G.E. 70	K-6	49200	3
1	178	31st St.	Feb. 1905	E-4	W	2	Baldwin #1	4	G.E. 70	K-28-B	46700	4
4	179-182	31st St.	Jun. 1905	E-4	W	2	Baldwin #1	4	G.E. 70	K-28-B	47300	5
15	183-197	31st St.	Sep.-Nov. 1906	G-6	S	2	Baldwin #5	4	G.E. 70	K-28-B	51520	6
6	198-203	Snelling	Mar.-May 1908	I-1	S	2	Baldwin #5	4	G.E. 213	K-37-A	47800	
11	204-214	Snelling	Jun. 1909	K-2	S	2	Twin City #5	4	G.E. 213	K-37-A	46800	7
5	215-219	Snelling	Apr.-Jul. 1910	K-8	S	2	Twin City #6	4	G.E. 216	K-37	46200	
2	220-221	Snelling	March 15, 1911	Incline	S	1	Twin City Special		None	None	22000 or 30000	8
16	222-237	Snelling	May-Jun. 1911	L-8	S	2	Twin City #6	4	G.E. 216	K-37	46200	
4	238-241	Snelling	Feb. 1911	K-8	S	2	Twin City #6	4	G.E. 216	K-37-C	46200	9
10	242-251	Snelling	May-Aug. 1912	L-8	S	2	Twin City #8	4	G.E. 216	K-37	43700	
3	252-254	Snelling	Aug. 1912	L-8	S	2	Twin City #8	4	G.E. 216	K-37-C	43700	10
2	255-256	31st St.	May 1901		W	2	Brill 02	4	G.E. 67	Two K-6	40200	11
6	257-262	Snelling	Sept. 1914	L-8	S	2	Twin City #9	4	G.E. 200	K-43-F2	41700	
4	263-266	Snelling	Dec. 1915	L-8	S	2	Twin City #9	4	G.E. 200	K-43-F2	41700	12
4	267-270	Snelling	Nov. 1914	L-8	S	2	Twin City #9	4	G.E. 200	K-43-F2	41700	13
8	271-278	Snelling	May 1917	L-8	S	2	Twin City #9	4	G.E. 200	K-43-F2	41700	
6	279-284	Snelling										14
6	289-294	31st St.	Dec. 1906/Mar. 1907	G-6/H-6	S	2	Baldwin	4	G.E. 70	K-28-B	45240	15

TABLE 3. CARS ACQUIRED WITH THE PARK POINT TRACTION CO., SEPTEMBER 1, 1917

DSR Number	PPTC No.	Builder	Date Built	Type	Under-Frame	Length Body	Length Overall	Width	Trucks No.	Trucks Type	Motors No.	Motors Type	Controller No.	Controller Type	Weight	Seats	Note
—	4	LaClede Car Co.	1899	Closed Psgr.	W				1	?	Westinghouse #3		?	?			16
285-286	10-11	St. Louis Car Co.	1905	Closed Psgr.	W	29'4"	40'5"	8'4"	2	St. Louis	2	G.E. 67	2	K-10	40616	=	17
287-288	20-21	Danville Car Co.	1911	Closed Psgr.	W	28'11"	41'1"	8'4"	2	Brill 27G-1	2	G.E. 67	2	K-10	36616	x=	17
5/147	12	LaClede Car Co.	1899	Snow Plow	W		32'9"		1	McGuire	2	T-H WP 30	2	K-2			18
3/148	13	LaClede Car Co.	1899	Tower Car	W		27'4"		1	McGuire	2	T-H WP 30	2	K-2			19

TABLE 4. PASSENGER CARS ACQUIRED FROM OTHER BUILDERS

Cars	Numbers	Builder	Date Built	Type	Under Frame	Length	Width	Trucks No.	Trucks Type	Motors No.	Motors Type	Controller No.	Controller Type	Weight	Note
3	295-297	American Car Co.	Sept. 1919	Single End Birney	S	28'0½"	8'0"	1	Brill 78M1F	2	G.E. 258C	1	K-63-B	13300	20
3	298-300	American Car Co.	Sept. 1919	Double End Birney	S	28'0½"	8'0"	1	Brill 78M1F	2	G.E. 258C	2	K-63-B	13900	20
5	301-305	Light Weight Noiseless Electric Street Car Co.	April 1925	Lightweight	S	35'11"	9'1"	2	Twin City #12	4	G.E. 258K	1	Rebuilt K-28	24200	21

Car Numbering System

Work Equipment carried two numbers, one for the work equipment series and one for the passenger car series. The work equipment series was a functional one in that each category was numbered beginning with #1 (Snow Plow #1, #2, #3, etc.; Flat Car #1, #2, #3, etc.). The numbers assigned in the passenger series apparently were based on which city the particular car was assigned to originally, Duluth cars using the available 60 series and 90 series numbers and Superior cars using the 130 series numbers. When the 60 and 90 series were completed (with one exception) the work equipment was all assigned 140 series numbers. New passenger equipment purchased beginning in 1901 was numbered starting with #151. As it turned out, numbers 98, 149 and 150 were never used.

Passenger Equipment Built by the Twin City Rapid Transit Co.

In 1899 DSR was thinking about obtaining more cars by constructing double truck cars in its West End shops; DSR would build the bodies but trucks, motors and controllers would be purchased. Unfortunately DSR was in receivership and financially unable to proceed with these plans. After re-organization in 1900 it was announced on August 27th that much needed and desired cars would be procured immediately from the Twin City Rapid Transit Co., being constructed in their shops. The cars were under construction in the late Fall, 1900, and the first car arrived in Duluth January 3, 1901. See Table 2.

Notes to Table 2

1. Loops and wyes had to be built as the cars were single end, approach tracks at the carhouse rebuilt for clearance purposes, bridge and track structures upgraded to sustain the greater weight. The first trial run was not made until May 24, 1901. Regular operation began June 2nd on the "Interstate" line and October 31st on the "Lakeside" line. During the spring of 1903 all twelve cars were equipped with airbrakes (and whistles) increasing the weight to 44,040 lbs. In addition 151-156 were re-equipped with rear double gates and steps making them identical to TCRT Class B-5 cars.
2. The car was 22'2⅞" long, 8'4" wide and weighed 28,000 lbs. complete with 10'0" gauge truck, four motors and controller. A second similar truck was equipped with a ten-ton metal casting for use as the counterweight. The body and both trucks were unloaded in Duluth November 26, 1901. TCRT had numbered the car 163 but DSR later changed it to 63.
3. Interior woodwork finish was cherry rather than maple as on cars 151-162. This order of cars was placed on the "West Duluth-East End" line. Later DSR records indicate these cars received K-28-A controllers.
4. Built as TCRT 1043, the car was sold to DSR upon completion. It was placed in operation March 16th in Hunter's Park short line service on the "Woodland" line.
5. Built as TCRT 1108-1111, the cars were sold to DSR in June.
6. Delivered in the spring of 1907, all were placed in service during June through August on the "E. 4th St." and "Lake Ave." lines.
7. Arrival of these cars in July, 1909, brought the total double truck cars to sixty-four, sufficient to furnish base service on all Duluth lines (except the "Piedmont & W. 4th St." line which had too little traffic to warrant large cars) and the "Interstate" line.
8. Each car was 24'1¾" long over-all (22'7" body), 10'10¼" wide and weighed 30,000 lbs. (22,000 lbs. per DSR records). The 10'0" gauge truck had a 9'0" wheelbase and 34" diameter wheels, and was equipped with Christensen air brakes. Seating capacity was 25 persons.
9. Built as TCRT 1482-1485, they were acquired by DSR on July 1, 1911.
10. Built as TCRT 1564-1566, they were acquired by DSR in November, 1912.
11. These two cars were built as TCRT 868-869. TCRT rebuilt them during December, 1912, for double end, one-man operation, the doors, traps and steps located on one side only of each car. They were shipped to Duluth and placed in service on the isolated "Highland Ave." line January 18th and January 22nd, 1913, replacing two single truck cars. It required eighteen horses to haul each carbody up the Mesaba Ave. hill, the trucks having been sent up separately earlier. To cope with winter snows on this isolated line, each car was equipped with both V plows and small wing plows during the winter months.
12. Built as TCRT 1789-1792, they were acquired by DSR in May, 1916, for the Morgan Park extension.
13. Built as TCRT 1724, 1719, 1716 and 1722 respectively, they were acquired by DSR in July, 1916.
14. Due to the general economic boom that came with World War I, opening of shipbuilding facilities in Riverside and increased production at the steel plant in Morgan Park, DSR experienced a substantial increase (39% in two years) in business. More cars were needed, but TCRT had ceased producing cars for the duration of the war. So TCRT leased six cars to DSR from December 24, 1917, until October 29, 1920: DSR 280-283 were TCRT 988-991 (same type as DSR 163-177); and DSR 279 and 284 were TCRT 1672-1673 (same type as DSR 257-262). Cars 1672-1673 came from TCRT with Baldwin trucks and G.E. 216 motors but were returned in 1920 with Baldwin trucks and G.E. 70 motors: trucks and motors from 248 went on 164; those on 164 went on

1673; trucks and motors from 279 went on 197; and those from 197 went on 1672.

15. Transporting the McDougall-Duluth Shipyard workers developed into a critical situation. Rioting and disorders erupted among the workers who felt that streetcar service was not sufficient. The N. P. Ry. ran extra trains from the shipyards to the Union Station but this did not solve the problem either. On August 27, 1918, DSR entered into a contract with the U.S. Shipping Board Emergency Fleet Corp., a federal agency, which loaned DSR $81,500 for the purchase of six cars, one snow plow and one 1000 KW rotary converter. Title to the equipment remained with the Fleet Corp. with DSR as the lessee, paying 5% interest per annum on the principal. DSR repaid the principal sum in 1921 thereby acquiring title to all of the equipment. Cars 289-294 were built in TCRT 31st St. Shops during 1906 and 1907 as their 1202, 1204, 1212, 1231, 1232, and 1234 respectively. Acquired by DSR on November 20, 1918. Cars 289-291 were built in December, 1906, as Class G-6; cars 292-294 were built in March, 1907, as Class H-6. The bodies only were furnished by TCRT at first. DSR used Baldwin trucks, G.E. 70 motors, and K-28-B controllers on the cars until TCRT was able to furnish Twin City #9 trucks, G.E. 200 motors, and K-43-F2 controllers (shipped May 19, 1919) for them.

Equipment Maintenance

Walter J. Smith, when he was DSR's master mechanic, established policies for servicing and maintaining the equipment which were followed for many years. A description of the practices followed in 1904 was typical.

Daily servicing consisted of sweeping out and dusting the interior, washing exterior windows, flushing the exterior, inspecting all parts for damage, oiling the motors and journals, adjusting the brakes, and re-filling the sand boxes.

Each car was overhauled annually. The body was stripped of all window sash, doors, seats, fittings, fixtures, and electrical and mechanical equipment. The car was then scrubbed inside and outside. Any repairs to the body woodwork and floorboards were made next. A complete paint job then followed which consisted of (1) puttying holes, (2) three coats of lead paint, (3) three coats of flat color, and (4) three coats of varnish on the exterior and two coats on the interior. Meanwhile all of the electrical and mechanical equipment, and other items which had not been removed were all thoroughly inspected, repaired or overhauled, and repainted. The car was then re-assembled. This entire process took about thirty days from start to finish.

Notes to Table 3

16. This car was sold for scrap in 1919 to the West End Scrap Iron & Metal Co.
17. The two G.E. 67 motors from 285 were added to 286 in November, 1917, to make it a four-motored car for fighting winter snow and ice; it also received two K-28-B controllers. 285 then received two G.E. 67 motors from DSR equipment. In 1920, 285-288 were converted to one-man operation. When tracks were laid over the Aerial Bridge in 1930, the four cars were modified for through service to downtown Duluth as follows: (1) re-equipped with four motors and heavy-duty controllers, (2) the rigid pilots were replaced with safety devices similar to those on the Birney cars, and (3) door motors, steps, window guards, and various electrical equipment were modified and/or upgraded to make the cars safer and easier to operate as well as for compatibility with the standard cars in main line operation. The bodies of all four cars were sold in 1931 when the Park Point line was abandoned.
18. This was one of the original single truck, closed passenger cars rebuilt into a Snow Plow by PPTC. The frame and body had been specially reinforced, and a steel shear plow fitted on each end. DSR re-equipped the car with two G.E. 67 motors and two K-10 controllers. It remained in service on the Park Point line until retired in 1931.
19. This was one of the original single truck, closed passenger cars rebuilt into a Tower Car by PPTC; a 5'8" x 5'0" fixed platform was built on the roof. DSR later re-equipped the car with two G.E. 67 motors. It remained in service on the Park Point line until retired in 1930.

On March 14, 1930, DSR received the fire car (ex PPT#5) from the City of Duluth in exchange for the fire car carhouse. DSR records of obsolete service equipment retired in 1931 include "Park Point trailer and Park Point fire car".

Notes to Table 4

20. DSR had been looking for a smaller economical car to use on its low traffic lines in both cities. A decision was made to purchase single truck Birney cars for this purpose. 295-297 were intended for the "Billings Pk.-Broadway" line (Superior) and 298-300 for the "Park Point" line. The double end cars went into service October 1st, 1919; thereafter the four double truck cars were used primarily to handle beach traffic on summer evenings and Sundays. However the City of Superior refused to allow the use of Birney cars, so the single end cars did not enter service until October 4th, 1919, when they were placed on the "Kenwood" and "E. 9th St." lines in Duluth; they were also used on the "Piedmont Ave." line. People protested they were unsafe, unsanitary, uncomfortable, and unsuitable so their use was irregular in subsequent years. All were disposed of during 1938, 297 being retired, while the bodies of the others were sold.

21. These cars were purchased as an economical design for use on low-revenue lines in Superior. They entered service April 19, 1925, and produced a considerable savings in power consumption: 1.53 KWH per car-mile compared to 2.96 KWH on the large standard cars. Their chief use was on the "East End-Allouez" line. The last streetcar to operate in Superior was 301 which tied up at 1:10 A.M. Monday, June 24, 1935, at Hill Ave. and Belknap St. All five cars were then hauled to Duluth by a steam locomotive over the Soo Line Ry. where they were used chiefly on the "West Duluth" line. The bodies of all five cars were sold during 1938.

Seating Arrangements

The standard two-man cars had seven rows of double cross seats in the front half of the car with longitudinal benches on both sides in the rear half. Seating capacity was rated at 46 persons. In 1920-1921 the pole side bench was cut back from the rear bulkhead reducing seating capacity to 45 persons.

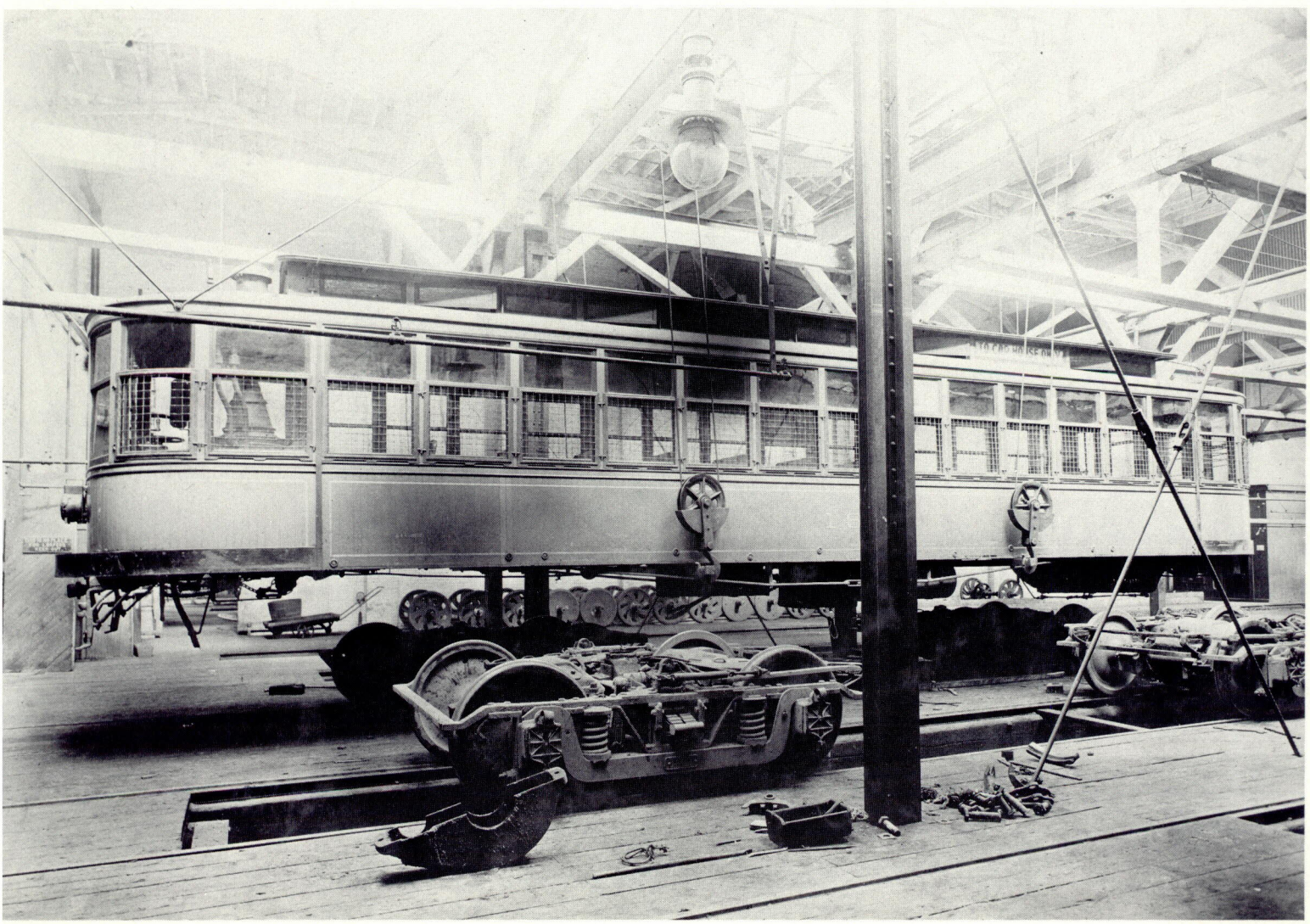
The cars rebuilt with front exit doors in 1923 had three rows of double cross seats at the front of the car removed and replaced with longitudinal benches on each side seating five persons each. Seating capacity was then rated at 43 persons.

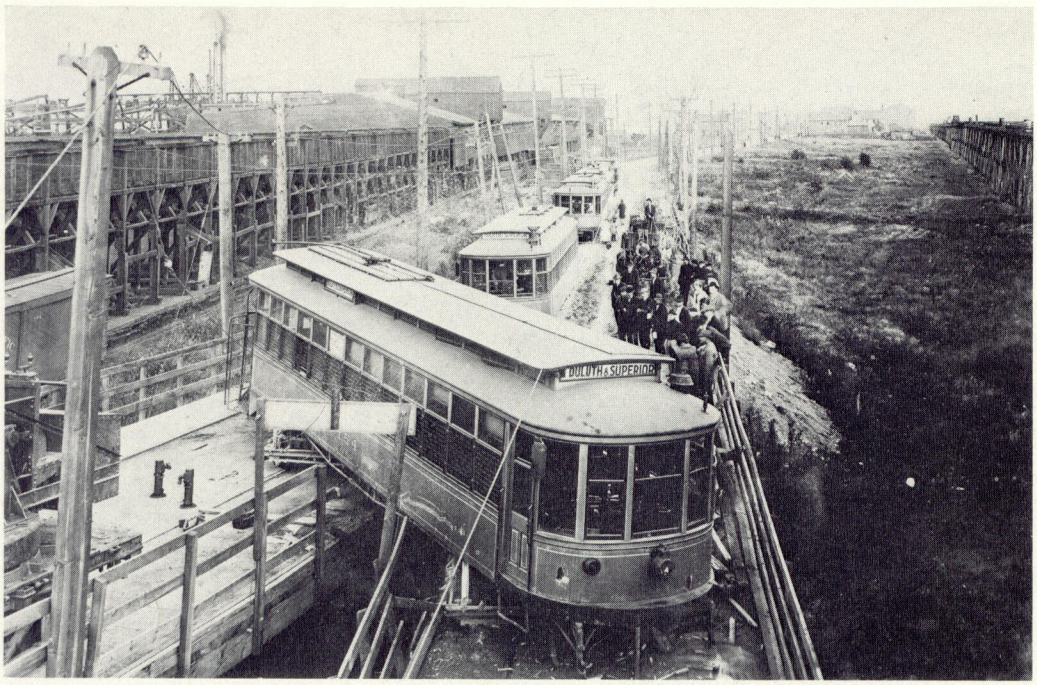
Cars rebuilt for one-man operation had 8 rows of double cross seats located in the central portion of car, with longitudinal benches on both sides at the front and rear. (The first six cars rebuilt from 1924 to 1926 had 7 rows of double cross seats.) On all cars a curved bench was installed on the rear platform. Seating capacity was rated at 51 or 52 persons.

The Birney cars had 7 rows of wood-slat double cross seats thus seating 28 persons.

The lightweight cars had six rows of double cross seats in the central portion of the car, with longitudinal benches on both sides at the front and rear. The pole side rear bench extended around the rear platform. Seating capacity was rated at 42 persons.

A photograph of the Duluth repair shop taken October 7, 1913. In the foreground is a Twin City #5 truck. The sign on the door by the car's front bumper reads: "This Is No Place For Loafers. Keep Out." (DSR; Wayne C. Olsen collection)



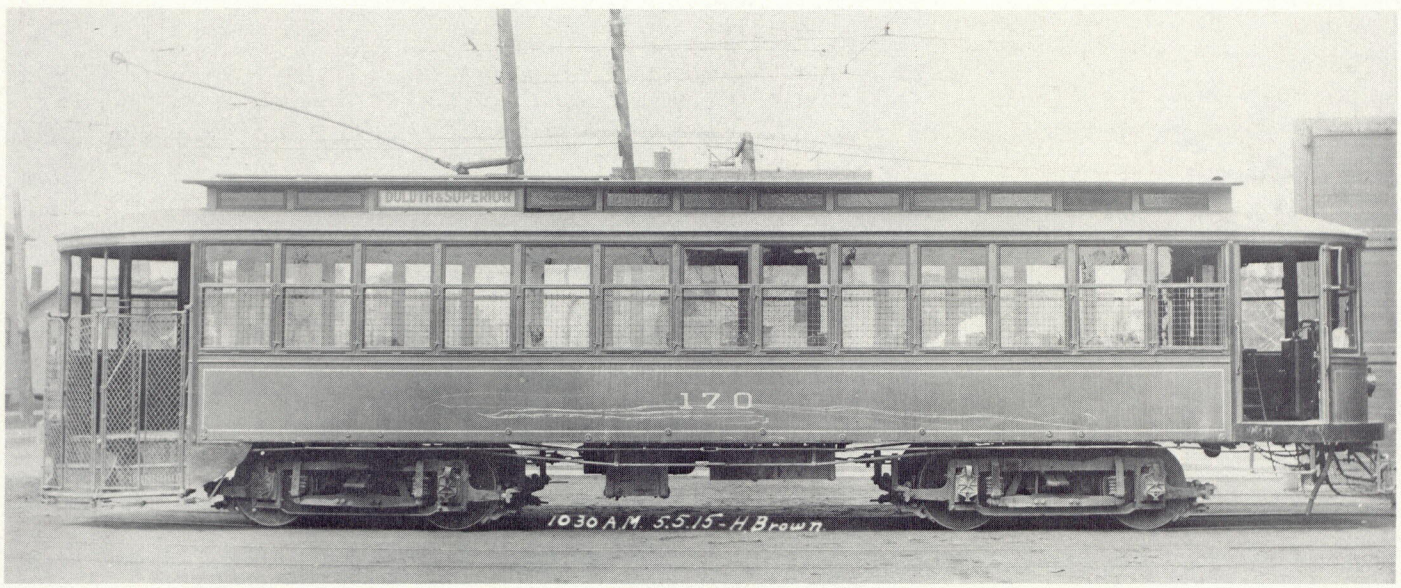


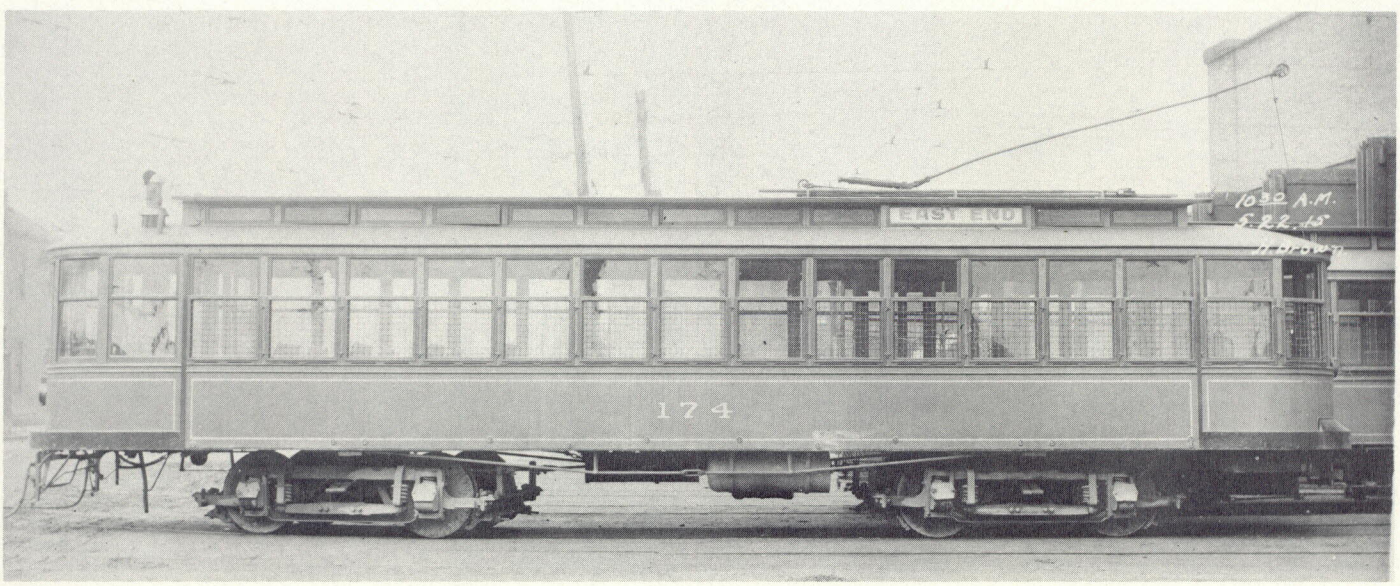
Above: Good photographs of Class B-3 cars 151-162 are rare. Here is 154 derailed on the Superior approach to the Duluth-Superior Bridge, September 12, 1913.

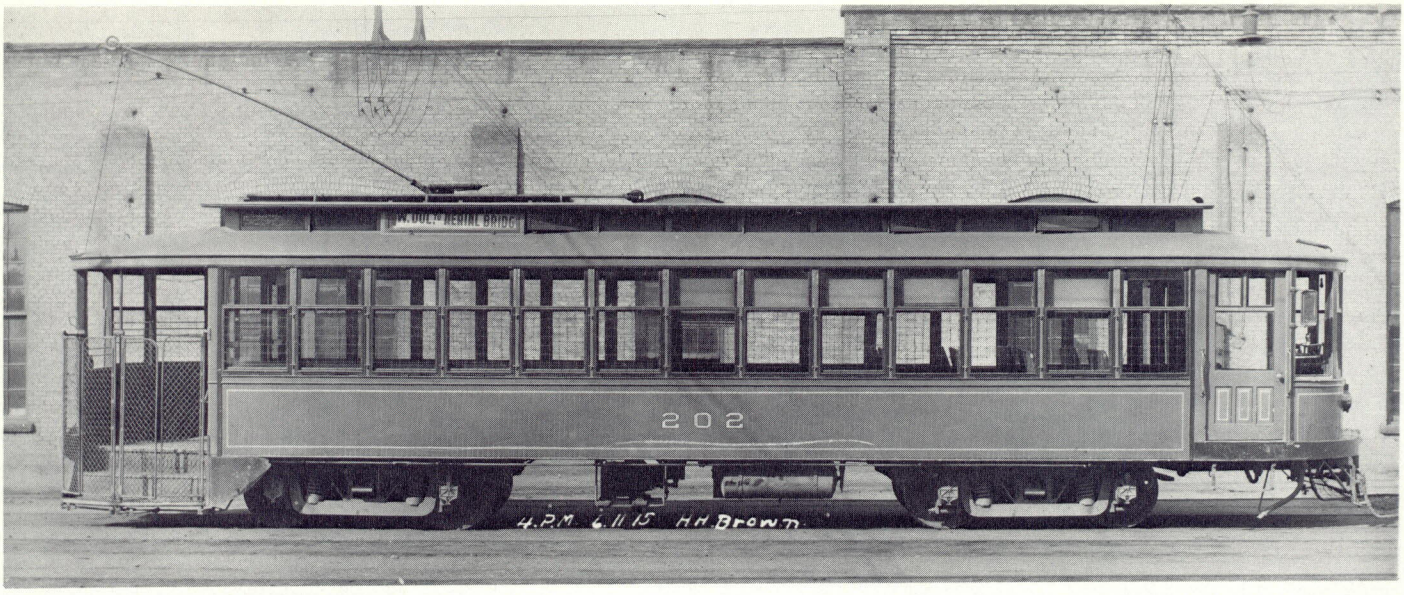
Center: Class D-7 car 170 at the Superior carhouse, May 5, 1915.

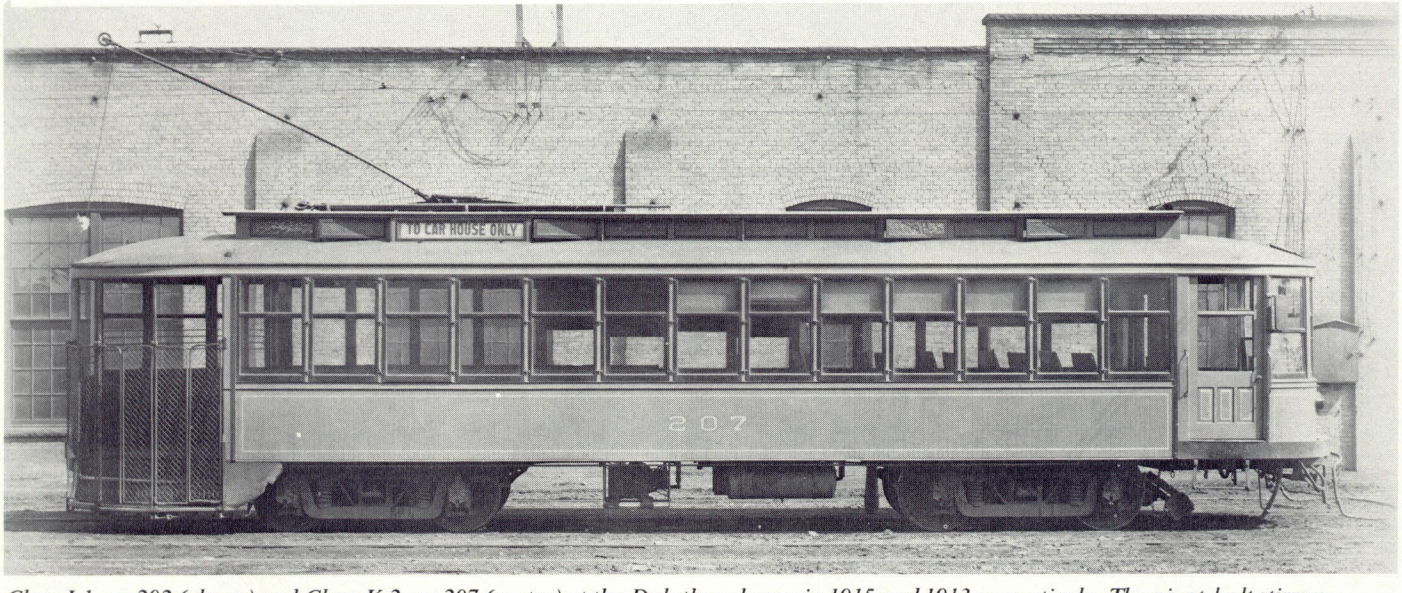
Below: "Pole side" of Class D-7 car 174, also at the Superior carhouse, May 22, 1915.

(All photographs DSR; Wayne C. Olsen collection)





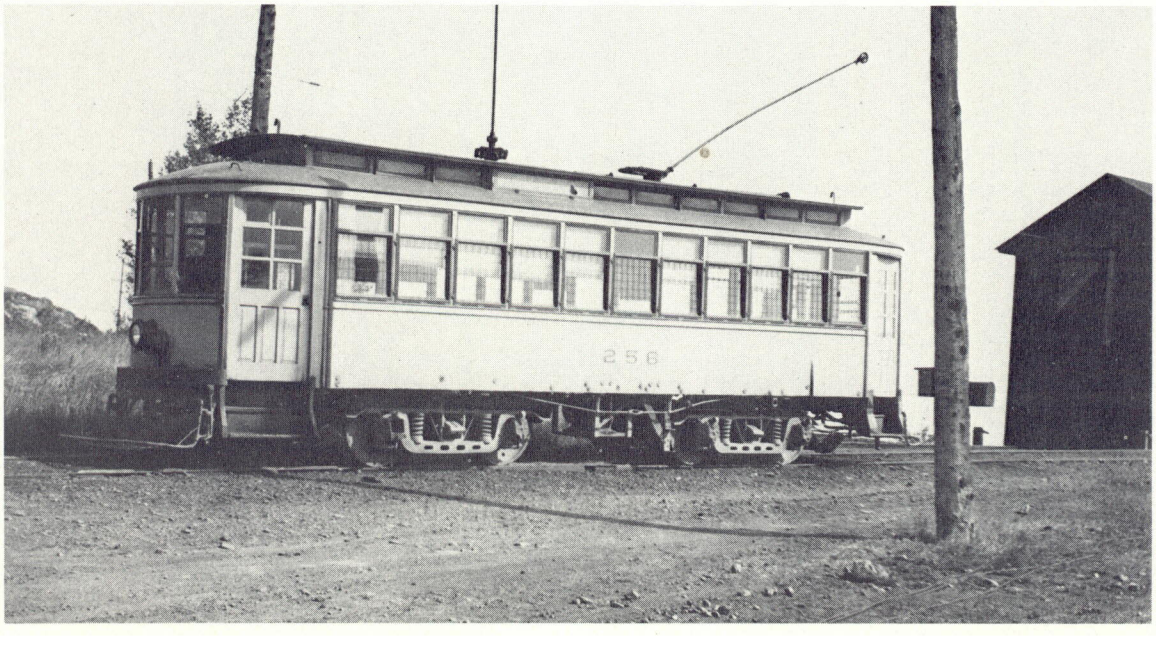


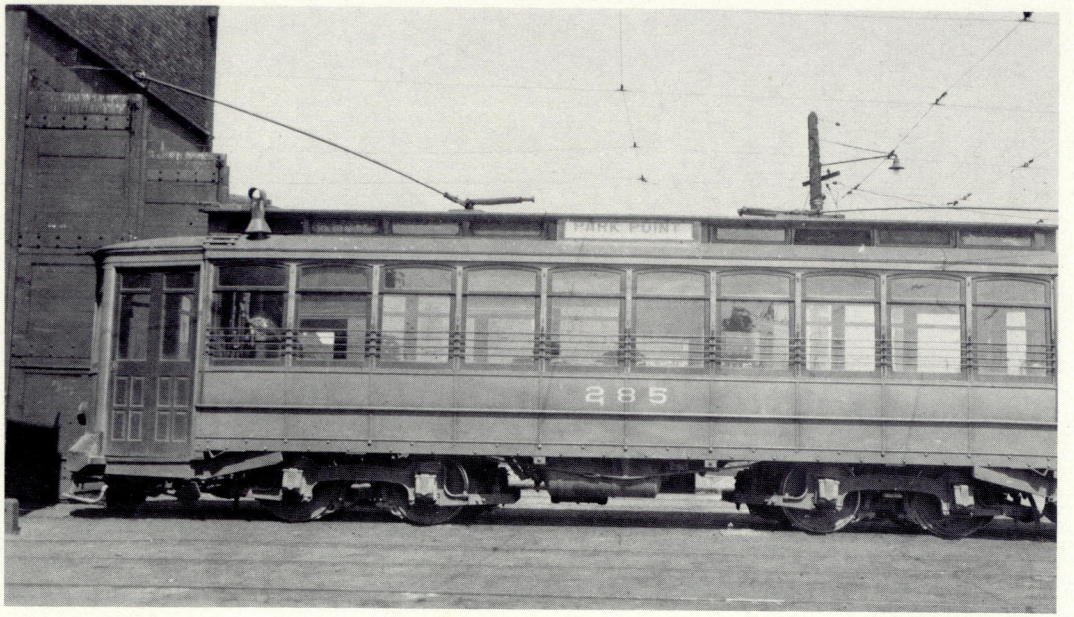


Class I-1 car 202 (above) and Class K-2 car 207 (center) at the Duluth carhouse in 1915 and 1913 respectively. The pivot-bolt stirrup step below the motorman's cab door and skirt at the rear steps were developed in 1913 to minimize damage and reduce repair costs from automobile collisions.

Below: Car 256 at the "Highland Ave." line carhouse in the late 1930's when Twin City #9 trucks had replaced the original Brill 02 trucks.

(All photographs DSR; Wayne C. Olsen collection)





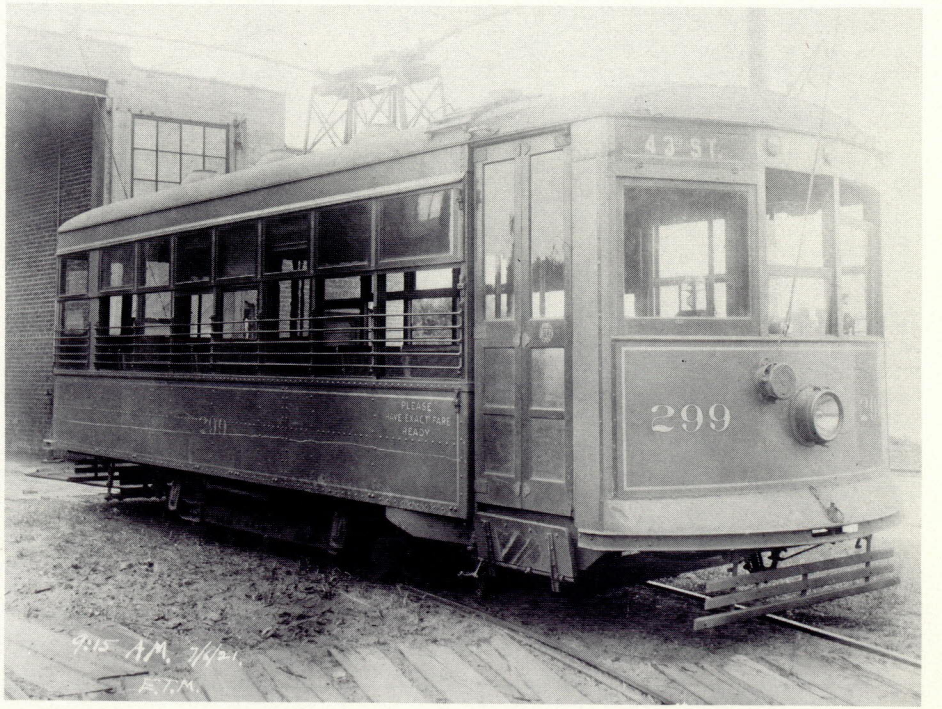
Above: DSR 285, formerly PPTC 10, at the Duluth carhouse April 24, 1930, after being upgraded for service over the Aerial Bridge.

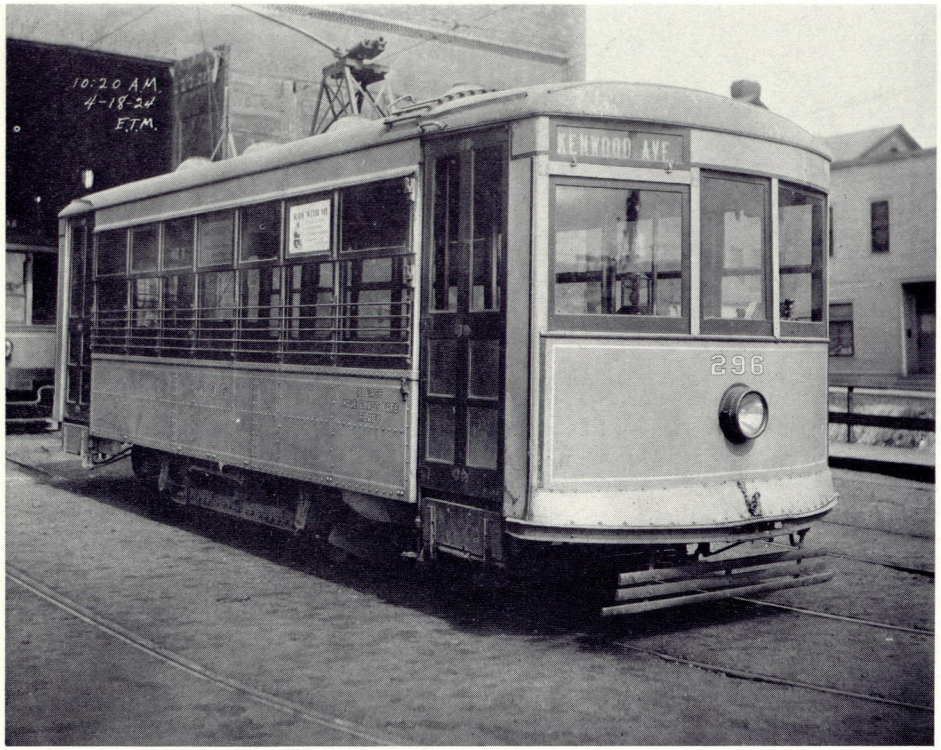
Below: PPTC Snow Plow 12 which became DSR 5/147.

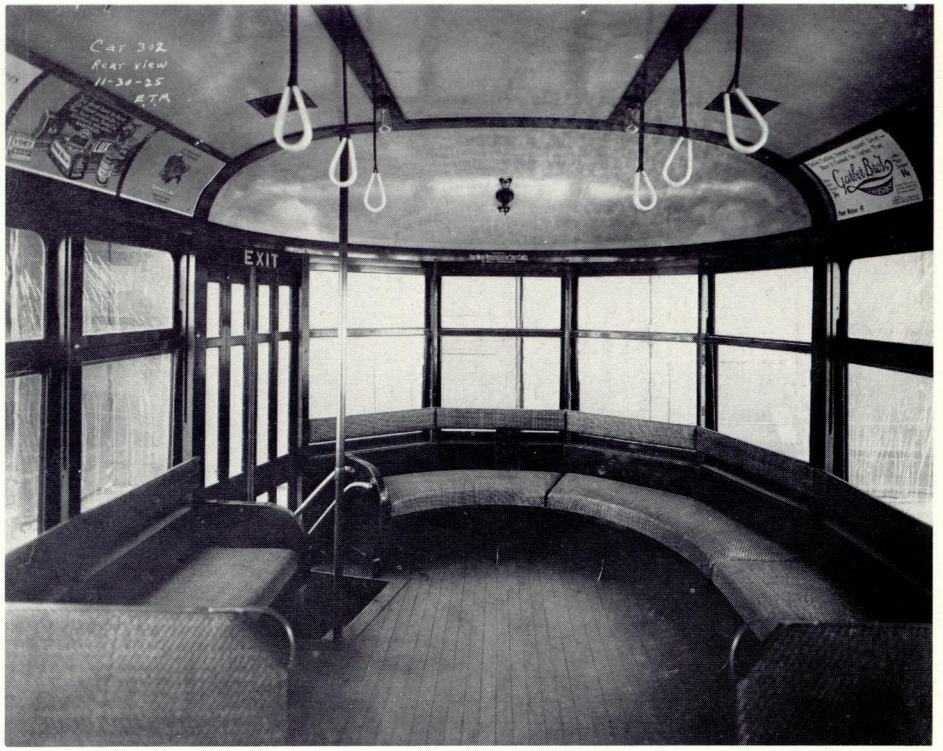
Above: PPTC Tower Car 13 on the storage track at the Park Point carhouse. It later became DSR 3/148.

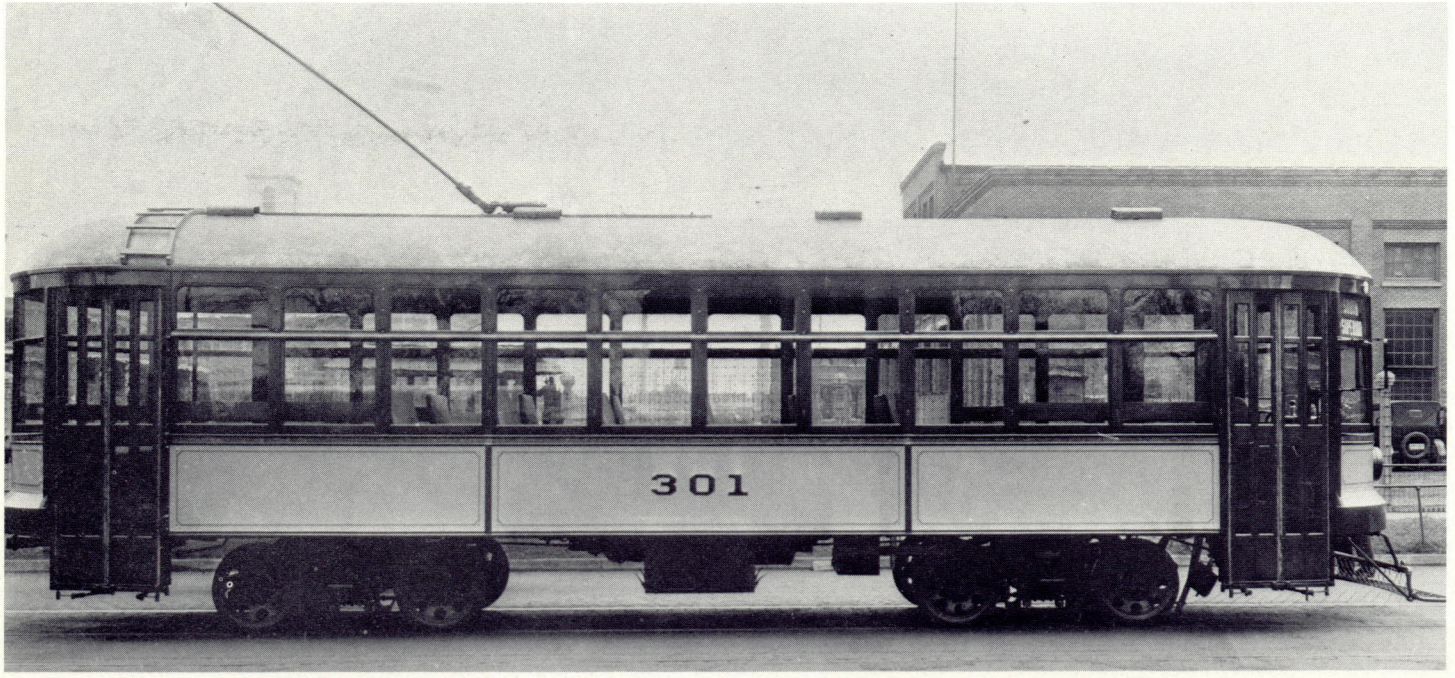
Below: Double end Birney car 299 at the Park Point carhouse July 6, 1921.

(All photographs Wayne C. Olsen collection)









Above left: Single end Birney car 296 at the Duluth carhouse April 18, 1924.

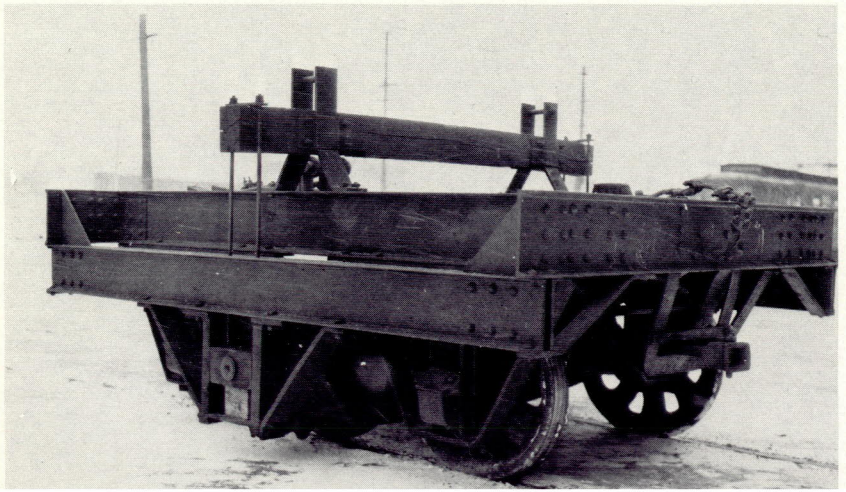
Above right: Rear view of the interior of car 302 showing the rear platform seating arrangement.

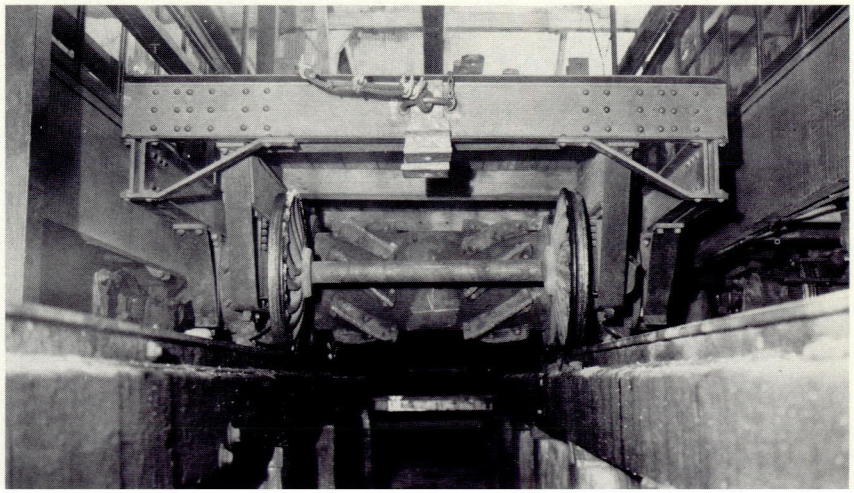
(Both photographs DSR; Wayne C. Olsen collection)

Below left: Builder's photograph of car 301 at the Snelling Shops, St. Paul (southbound on Snelling Ave.), 1925. (TCRT)

TABLE 5. SERVICE CARS (SEE ALSO PREVIOUS TABLES FOR CERTAIN OTHER SERVICE CARS)

Cars	Numbers	Builder	Date Built	Type	Under-Frame	Length Body	Length Overall	Width	Trucks No.	Trucks Type	Motors No.	Motors Type	Controller No.	Controller Type	Weight	Note
1	51	LaClede Car Co.	May-Jul. 1892	Tower Car	W	22'0"	32'9"	8'0"	1	McGuire	2	T-H SRG30	2	K-2	18000	22
1	1/39	Duluth St. Ry.	1898	Snow Plow	W	24'0"	41'6"	8'0"	2	Brill 27A-1	4	Westinghouse 49 (35 HP)	2	G.E. K-12		23
1	1/64	Duluth St. Ry.	1901	Flat Car	S	40'0"	42'2"	8'6"	2	Brill 27A-2	4	?	2	?		24
1	2/65	Duluth St. Ry.	1902	Flat Car	S	40'0"	42'2"	8'6"	2	?	4	?	2	?		25
1	2/66	Duluth St. Ry.	1903	Snow Plow	W	24'0"	41'6"	8'0"	2	Brill 27A-2	4	G.E. 67	2	K-6		26
1	1/67	Duluth St. Ry.	1904	Tower Car	W	28'0"	30'4"	8'0"	2	Bemis	4	T-H SRG30	2	K-12		27
1	3/140	Duluth St. Ry.	1906	Snow Plow	S	24'0"	41'6"	8'0"	2	Brill 27A-2	4	G.E. 67	2	K-28-B		28
1	3/96	Duluth St. Ry.	1907	Flat Car	S	40'0"	42'2"	8'6"	2	Twin City #7 Work Car	4	G.E. 67	2	K-6		29
1	1/141	Twin City Rapid Transit Co.	1911	Wrecker-Crane	S		37'2½"	7'10"	2	Twin City #7 Work Car	4	G.E. 70	1	K-28-B	52710	30
1	4/97	Duluth St. Ry.	1912	Flat Car	S	40'0"	42'2"	8'6"	2	Twin City #7 Work Car	4	G.E. 70	2	K-6		31
1	—	Duluth St. Ry.	About 1915	Gondola Trailer			15'0"	6'2"	1							32
2	—	Duluth St. Ry.	About 1915	Flat Trailer			15'3"		1	Bemis		None		None		
1	62	LaClede Car Co.	May-Jul. 1892	Supply Car	W	22'0"	32'9"	8'0"	1	McGuire	2	T-H SRG30	2	K-2	18000	33
1	5/142	Duluth St. Ry.	April 1917	Flat Car	W		21'0"		1	McGuire	2	T-H SRG30	2	K-2		34
1	6/143	Duluth St. Ry.	Jul. 1917	Flat Car	W		21'0"		1	McGuire	2	T-H SRG30	1	K-2		34
1	7/144	Duluth St. Ry.	Jul. 1917	Flat Car	W		21'0"		1	McGuire	2	T-H SRG30	2	K-2		34
1	8/145	Duluth St. Ry.	Jul. 1917	Flat Car	W		21'0"		1	McGuire	2	T-H SRG30	2	K-2 C-6-K		34
1	4/146	Twin City Rapid Transit Co.	Nov. 1917	Snow Plow	S		37'2"	7'9"	2	Baldwin #4	4	G.E. 73E	1	Type M	64320	35
1	131	American Car Co.	1894	Supply Car	W	22'2"	33'2"	7'11"	1	McGuire 19F	2	T-H WP30	2	K-2		36
1	—	Thew Co.	1922	Electric Shovel	S				1		1	G.E. CV			56000	37
3	—	Duluth St. Ry.	1923	Gondola Trailers	S		15'3"	6'2"	1	McGuire		None		None		38
1	"Goliath"	Duluth St. Ry.	1928	Ice Breaker	S		7'0"		1			None		None		39



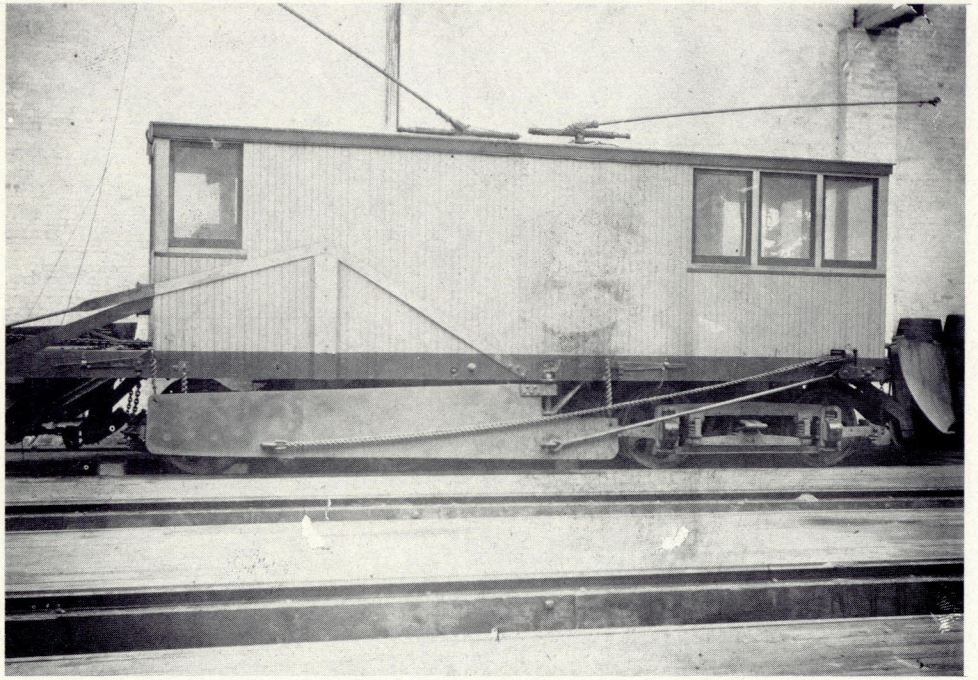


Two views of Ice Breaker "Goliath". (DSR; Wayne C. Olsen collection)

Notes to Table 5

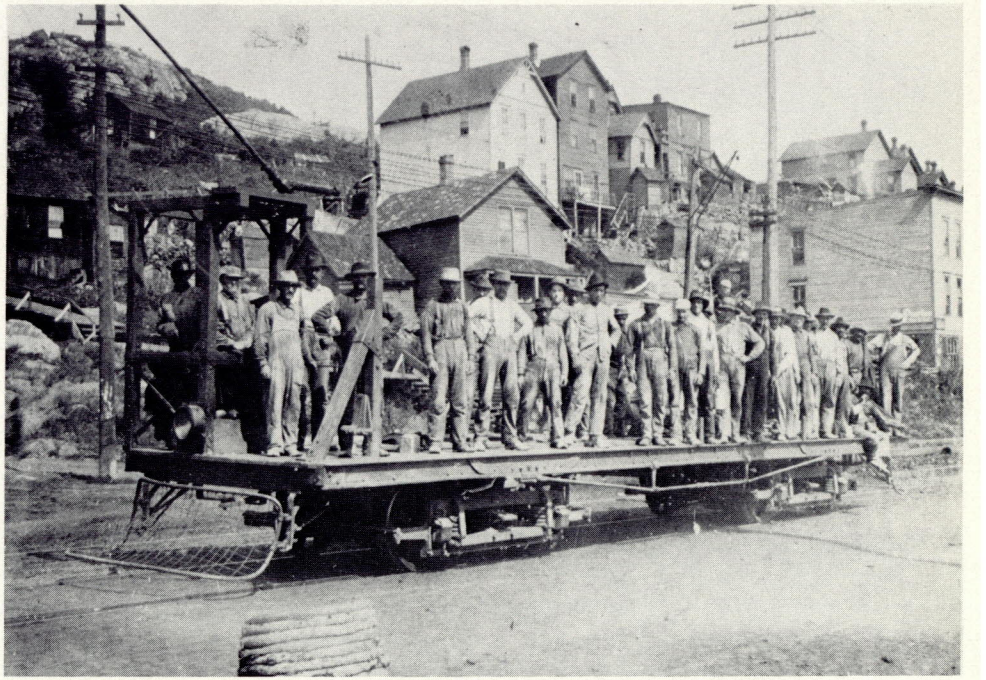
22. A platform and line tower were built on the roof of this car in 1892.
23. This was a double end snow plow designed by Walter J. Smith, built in 1898 according to the Ford Bacon & Davis inventory of March, 1900. The body had a sliding door (for the crew) on one side only, the steel shear plows at each end were operated by compressed air, and the wing plows on each side operated by electric motors. DSR records carry a building date of 1902 on this car, which may be when it was re-equipped with four G.E. 67 motors and two K-28-A controllers. In later years the equipment was again changed: Baldwin trucks, four G.E. 216 motors, and two K-35-HH controllers.
24. As built this car had two unenclosed control cabs. It was subsequently equipped with two DSR-built trucks (6'0" wheelbase), two K-6 controllers; and one enclosed offset control cab constructed. In 1911 the four G.E. 67 motors from the incline railway car 63 were placed in Twin City #7 Work Car trucks for this car, and a second enclosed offset control cab constructed. The final rebuilding consisted of replacing the offset cabs with 4'6" x 4'6" pedestal-mounted center-located cabs; electrical and mechanical equipment remained unchanged. The drop sideboards were 22" high.
25. The earliest available photograph shows this car with two DSR-built trucks and enclosed offset control cabs at each end. It was finally rebuilt identical in appearance to 1/64 but equipped with Twin City #7 Work Car trucks, four G.E. 70 motors and two K-6 controllers.
26. Identical in design to 1/139. In later years the equipment was changed to Baldwin trucks, four G.E. 216 motors and two K-35-HH controllers.
27. Built from the wooden underframe and equipment of open passenger car 95. The offset cab measured 5'6" x 6'8", the swivel tower was hand-operated, and a reel stand was mounted on the deck. In later years two DSR-built trucks with four G.E. 67 motors were placed under the car.
28. Identical in design to 1/139 and 2/66. Equipment was later changed to Baldwin trucks, four G.E. 216 motors and two K-35-HH controllers.
29. The earliest available photograph shows this car with one unenclosed control cab and one enclosed offset control cab; an I-beam swing derrick equipped with a one-ton capacity electric chain hoist was mounted on the deck behind each cab. Later a second enclosed offset control cab replaced the unenclosed cab. The final rebuilding saw two pedestal-mounted center-located control cabs installed at each end; equipment was changed to four G.E. 70 motors and two K-28-B (or A) controllers.
30. This was a standard TCRT Work Car equipped with an eight-ton capacity crane powered by a 7½ h.p. electric motor. The controller was subsequently replaced by one K-35-JJ controller.
31. Built with pedestal-mounted center-located cabs on each end. In later years the car had two K-28-B controllers.
32. The box measured 3'4" high. 24" diameter cast wheels were used, the journal boxes being bolted to the side sills.
33. This passenger car was converted during 1915 into a Supply Car for use in Superior.
34. These cars were built for use in the construction of the Morgan Park and New Duluth lines. Each had an enclosed offset control cab on one end, and drop sideboards. Some cars had thermite welding, air compressor, and cement mixing equipment temporarily mounted on the deck at various times. 5/142 received the equipment from passenger car 85; it was later used by the Roadway Dept. with one K-2 controller. 6/143 received the equipment from passenger car 61; it was fitted with a swivel crane equipped with a Chisholm & Moore Cyclone chain block hoist; later used by the Roadway Dept. it finally ended up as an Ash Car. 7/144 received the equipment from passenger car 49; it was used as the Shop Coal Car in later years equipped with two G.E. 67 motors and one K-28 controller. 8/145 received the equipment from Private Car 42; later used as the Shop Ash Car with one K-2 controller.
35. This car was the property of the U.S. Shipping Board Emergency Fleet Corp. until 1921 when formally acquired by DSR. This was a single end car, identical in design to TCRT 75-82 built at the same time.
36. This passenger car was converted during September, 1920, into a Supply Car. The sole survivor of the original Superior single truck passenger cars, it served as a general purpose supply-tower-tow-miscellaneous car in Superior.
37. Equipped with four wheels and a 1/3 cu. yd. bucket, it was used until about 1964.
38. Used as Ash Car Trailers, the box measured 3'4" high. Each was equipped with one McGuire truck from old passenger cars. Superior shops received the car with the truck from 79, and Duluth shops the cars with trucks from 47 and 51.
39. Equipped with four wheels, it contained a 7'0" wide x 28" diameter sand-filled steel roller fitted with steel cleats. Usually towed by Snow Plow 4/146.

In 1930 Flat Cars 1/64, 2/65, 3/96 and 4/97 were fitted with detachable snow plows.



Above: An early view of Snow Plow 1 with Brill 27 A-1 trucks.

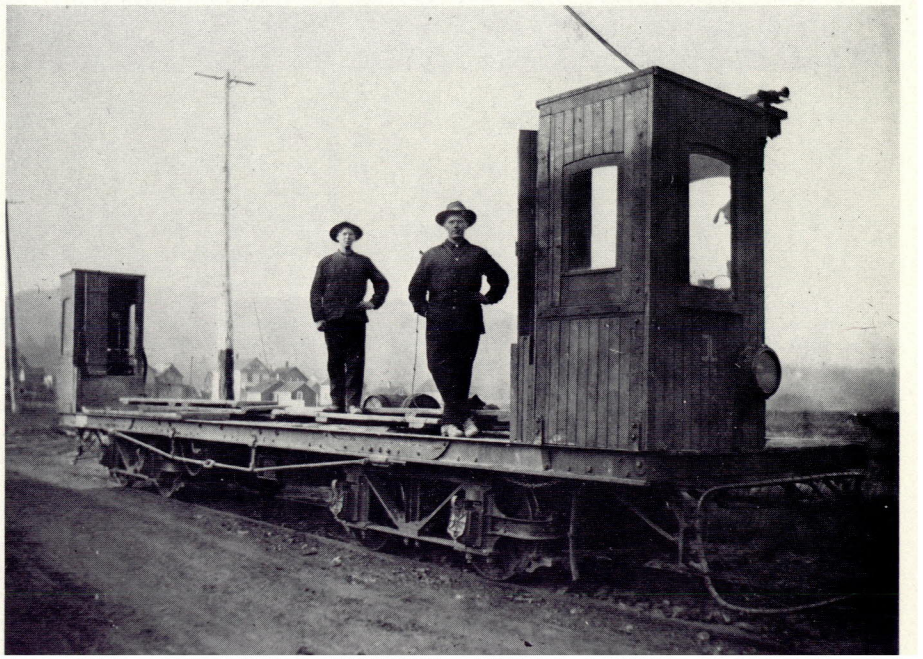
Below: First rebuilding of Flat Car 1, equipped with DSR trucks.

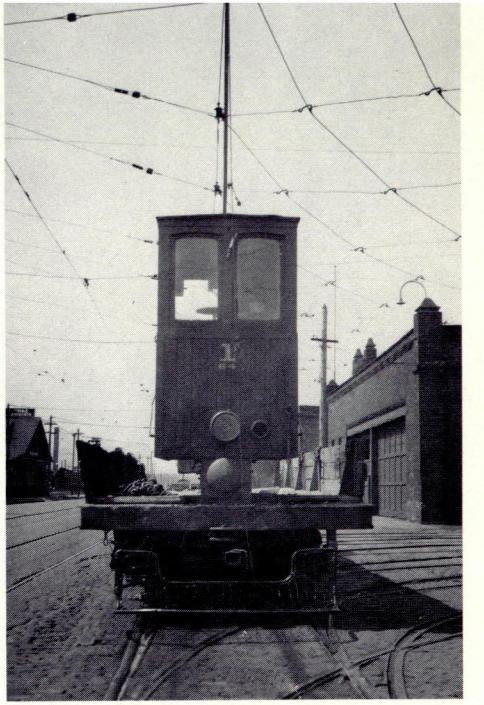


Above: Flat Car 1 as originally built (Brill 27 A-2 trucks), transporting a track construction crew to the work site.

Below: Second rebuilding of Flat Car 1, now equipped with Twin City Work Car trucks.

(All photographs Wayne C. Olsen collection)



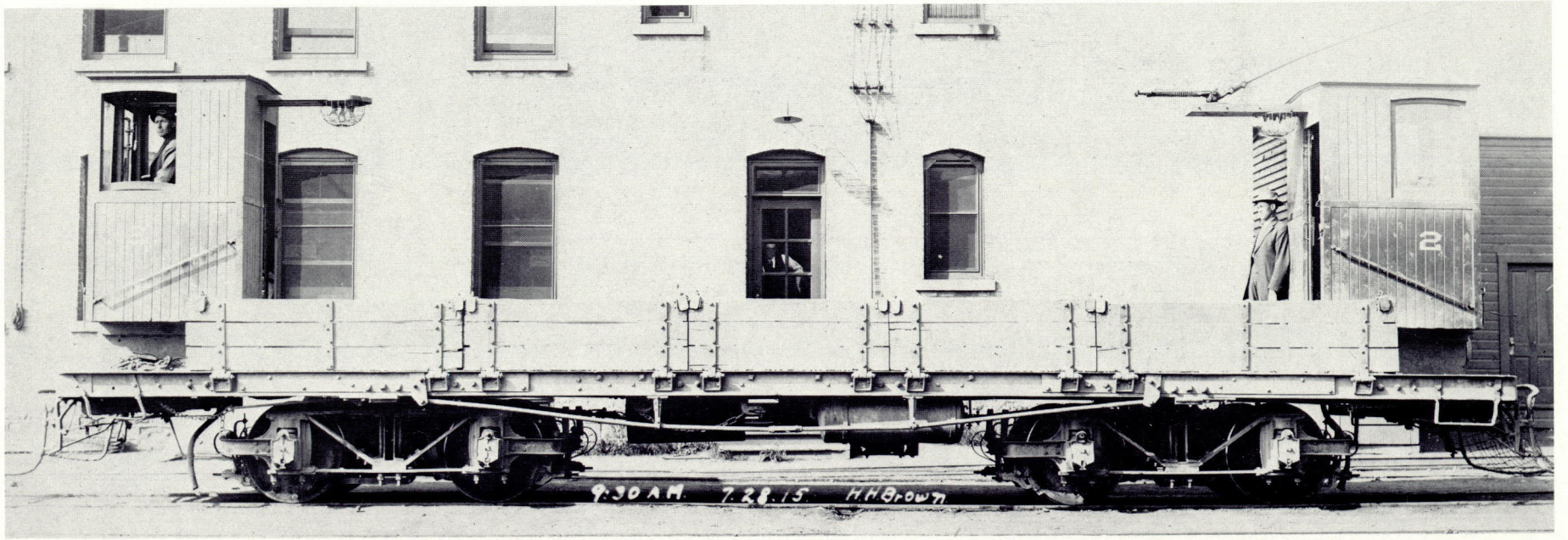


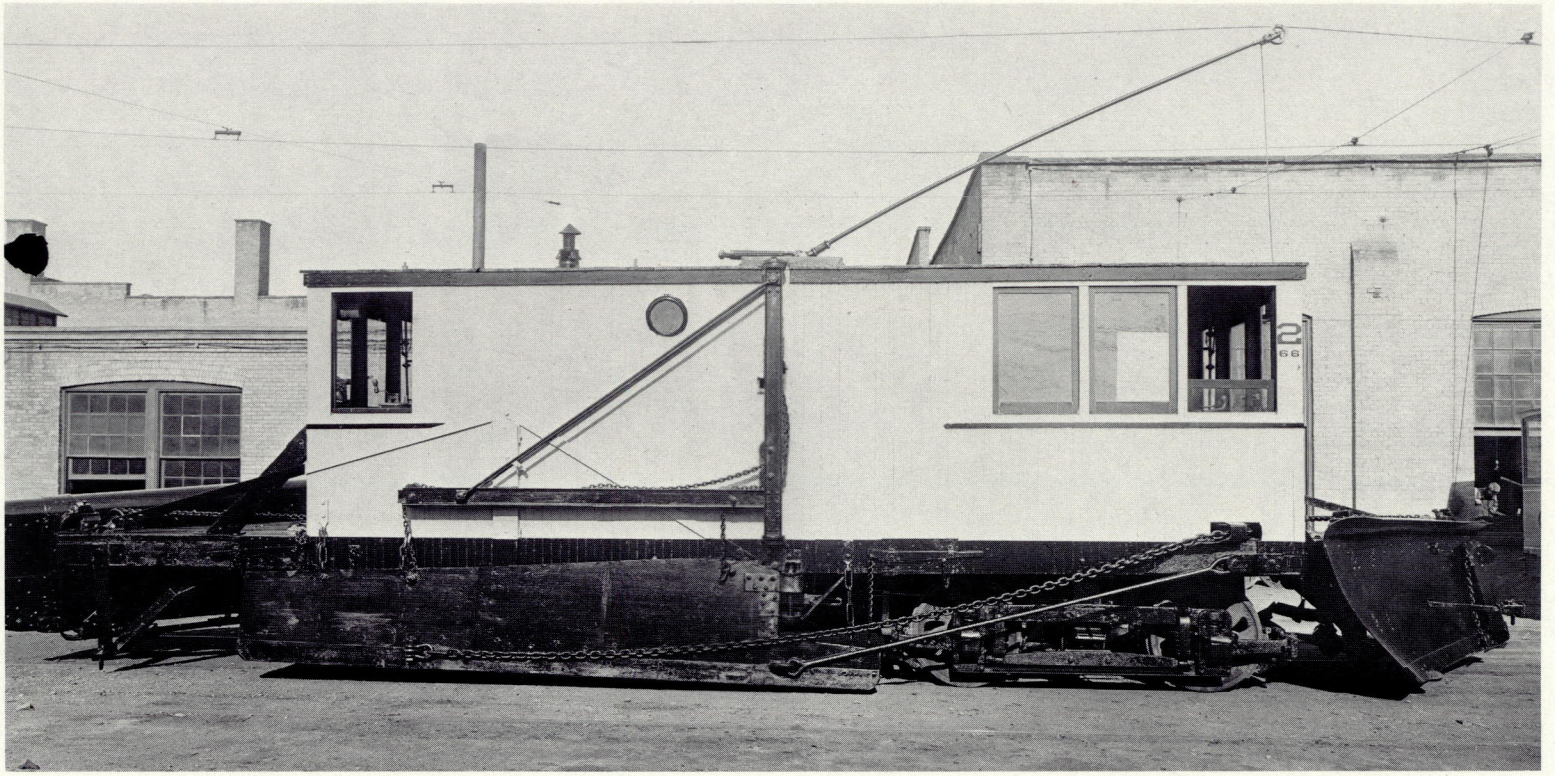
Left: Flat Car 2 on the E. 9th St. track construction project, January 8, 1912, providing a good look at the DSR trucks.

Right: Head-on view of Flat Car 1 as finally rebuilt. Flat Car 2 was identical in appearance. Taken on the ladder track at the Duluth carhouse.

Below: Flat Car 2 after its final rebuilding, with Twin City Work Car trucks. Both cabs on Flat Cars 1 and 2 were identical as finally rebuilt.

(All photographs DSR; Wayne C. Olsen collection)



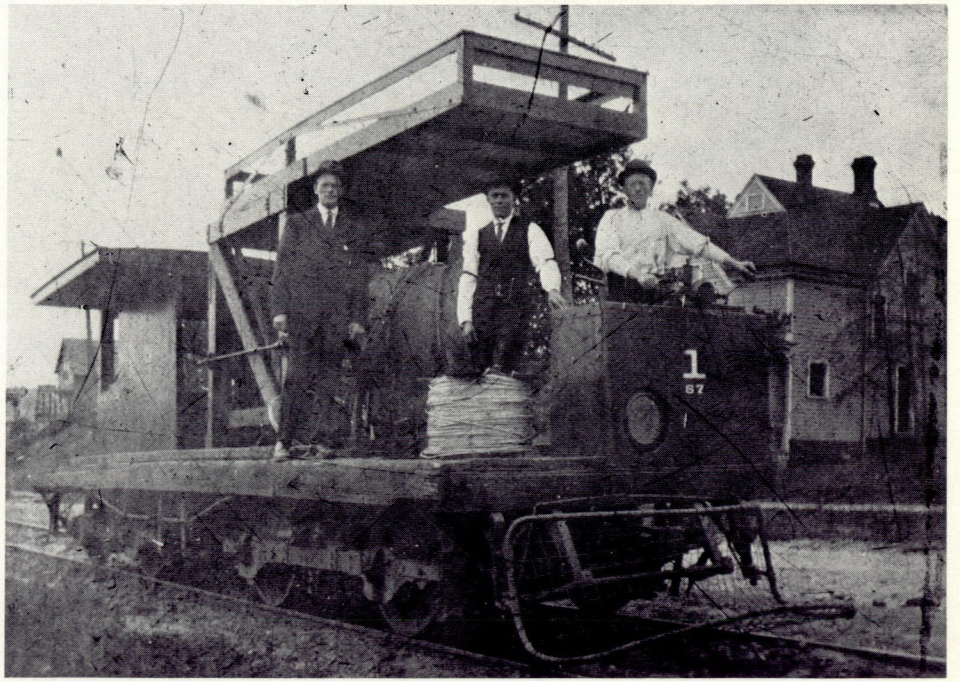


Above: Snow Plow 2 at the Duluth shops in 1916 after being freshly repainted.

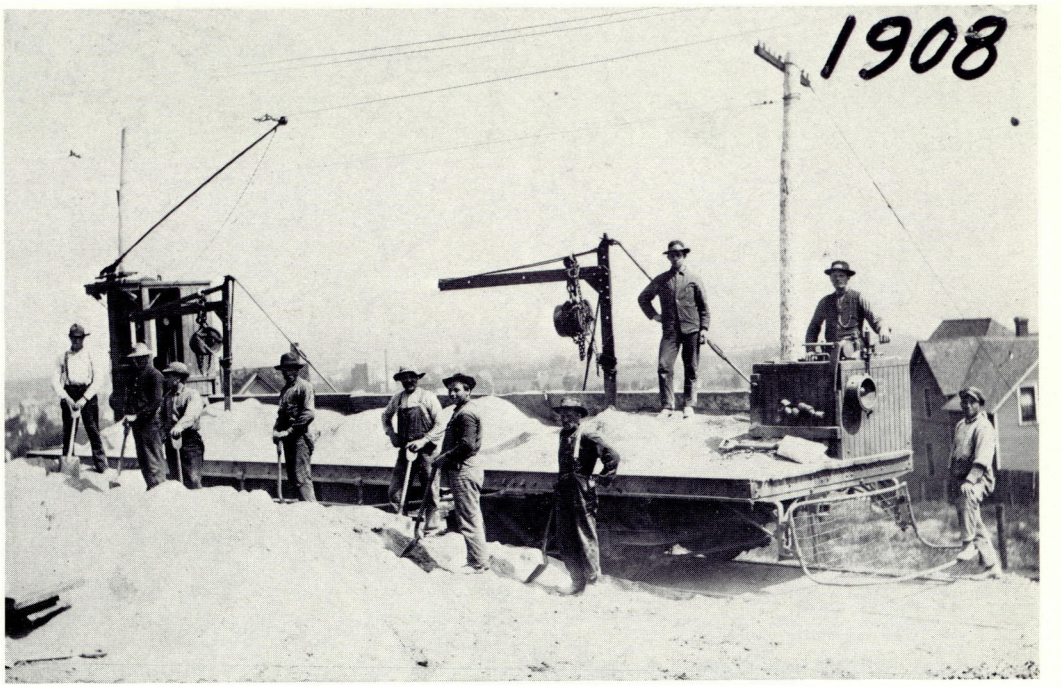
Right: Tower Car 1 as originally built, with Bemis trucks.

Left: Another view of Tower Car 1 re-equipped with DSR trucks.

(All photographs Wayne C. Olsen collection)



Snow Plow 3 on E. 9th St. at 7th Ave. E. in February, 1936. (James Kreuzberger)

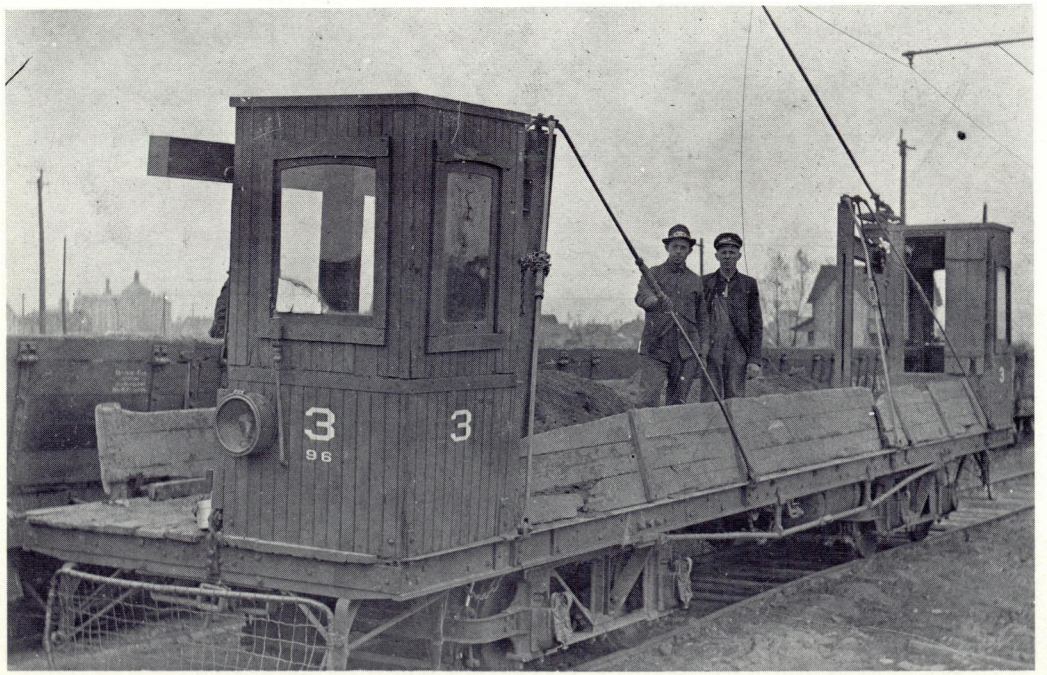


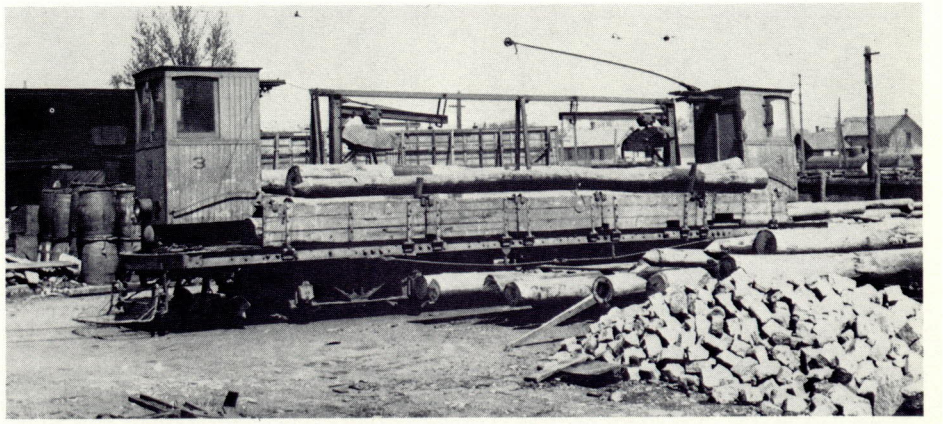
Above: Flat Car 3 on the loop at 57th Ave. W. and Medina St. in 1908.

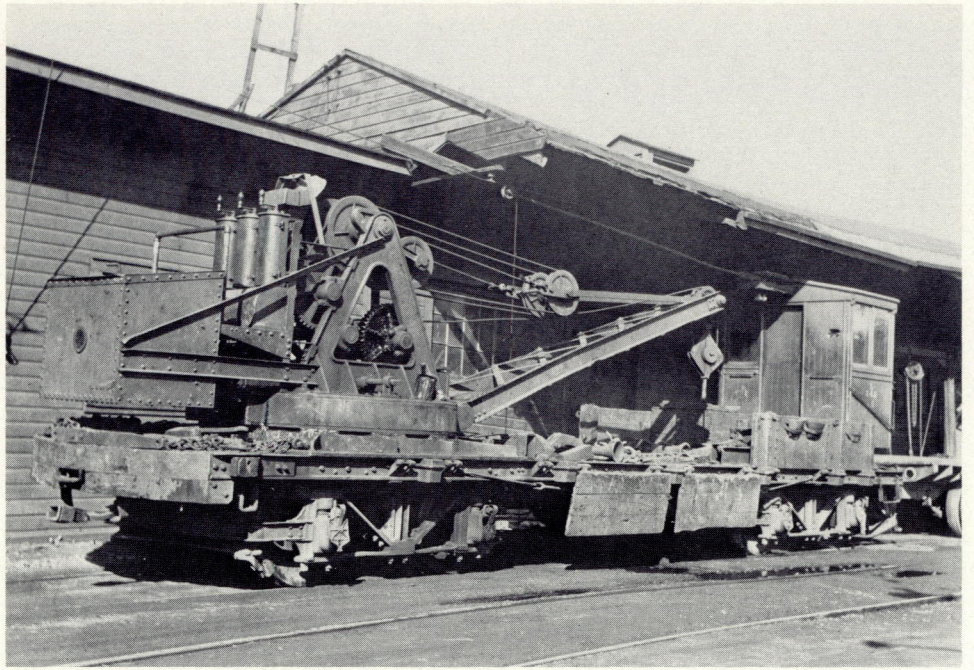
Below left: Flat Car 3 as next rebuilt, unloading ballast in Superior about 1917.

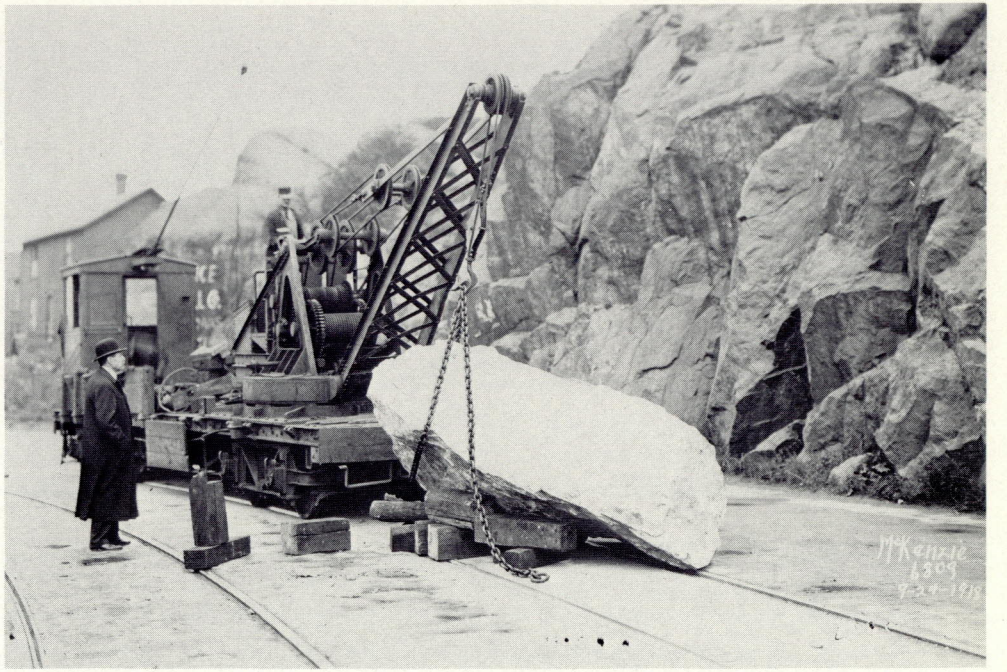
Below right: Flat Car 3 as finally rebuilt. The cabs were identical to those on Flat Cars 1 and 2, and the head-on appearance was also the same.

(All photographs Wayne C. Olsen collection)









Above left: Wrecker-Crane 1 at the Duluth car storage yard. Note the three controllers for the electric motors that operated the crane.

Above right: Cleaning up a rock slide at the Point of Rocks near 14th Ave. W. and Superior St., September 24, 1918. (McKenzie Studios)

Below left: Flat Car 5 as it appeared on December 17, 1919.

Below right: Snow Plow 4 newly received from the builder in November, 1917.

(All photographs DSR; Wayne C. Olsen collection)

Rebuilding Programs

Based on plans already devised and utilized by TCRT on its cars, during November and December, 1923, DSR shops rebuilt ten cars, 268-274 and 276-278, into front exit cars. A 31" wide doorway with enclosed vestibule and steps replaced the motorman's door, hot air underfloor heaters replaced the hot water heating system, electric heaters were installed in the motorman's cab, and a screened opening replaced the window in the left front bulkhead to afford greater circulation of heated air. Two cars began operating on the "Woodland" line November 2, 1923.

As DSR's standard cars had been well-built and well-maintained, it was decided in 1924 to rebuild certain cars for one-man operation on low-traffic lines in Superior. Features of this design were: (1) the rear platform was enclosed and a single set of mechanically operated (by the motorman) folding doors (for emergency exit only) replaced the gates, (2) a double set of pneumatically operated folding doors with an over-all opening of 52" wide were installed at the front, (3) front bulkhead doors were removed, and (4) controllers and brake valves were equipped with dead-man safety features.

Cars rebuilt to this design included the following: 3 cars, 163, 165, and 166 rebuilt May through August, 1924, for the "Billings Park-Broadway" line (These 3 cars as originally rebuilt had the hinged motorman's vestibule door installed on the rear vestibule, without steps, as the emergency exit door. After the train collision involving #169 in 1927, all 3 cars were fitted with folding emergency exit doors and steps as on the remaining 4 cars.); 2 cars, 164 and 167 rebuilt during June through August, 1925; 2 cars, 168, and 169 rebuilt November, 1925, to January, 1926; and 1 car, 177, rebuilt March through June, 1926.

In 1928 DSR determined that rising operating costs and Model T automobile competition called for the operation of one-man cars in Duluth as well. A more substantial design was developed: (1) the rear platform was enclosed and a double set of narrow folding doors, 33" wide opening, treadle operated, replaced the gates, (2) a double set of pneumatically-operated doors with an over-all opening 52" wide were installed at the front, (3) leather-covered, cushioned, form-fit seats installed on 50 cars, (4) interior lights moved from the window posts to the ceiling with glass lampshades, (5) ceilings painted white enamel, (6) rear end controls installed for backing operations, and (7) controllers and brake valves were equipped with dead-man safety features.

Cars rebuilt to this particular design included the following:

Twenty cars, 170-176, 178-180, 210-213, 215-219, and 244 were rebuilt during 1928. The first four cars completed (170-173) went into service April 1st on the "West Duluth-Aerial Bridge" line.

Twenty-eight cars, 208, 223-226, 228-232, 234, 237-239, 241-243, 245-254 and 265 were rebuilt during 1929.

Seventeen cars, 198-207, 209, 214, 227, 236, 240, 266 and 268 were rebuilt in 1930. The last car rebuilt was 205 completed August 30th.

One-man car 163 was rebuilt in October, 1934, for double end operation on the Crosley Ave. line in Duluth. Service on this line had been changed to a shuttle operation. Birney cars normally provided the service but rush hours required a longer car so the rebuilding was decided as the solution.

Electrical and Mechanical Equipment Changes

Trucks, motors and controllers were transferred between cars for various reasons. No attempt has been made to research these transfers in detail. This will explain why some photographs may show cars with equipment different than that listed. In addition, a number of second-hand controllers were purchased to upgrade equipment on many cars, passenger and work cars alike. (For example 184-188 and 190-194 by 1924 were equipped with K-35-JJ controllers.)

However, the 73 cars rebuilt for one-man operation allow for a simple listing and this is now provided.

Twin City #9 trucks, G.E. 200 motors, K-35JJ controller, and weight 48,300 lbs.: 163-180.

Twin City #9 trucks, G.E. 200 motors, K-37 controller, and weight 49,600 lbs.: 198-199.

Twin City #9 trucks, G.E. 200 motors, K-37 controller, and weight 49,600 lbs.: 200 and 245.

Baldwin trucks, G.E. 213 motors, K-37 controller, and weight 49,600 lbs.: 201-219, 240 and 244.

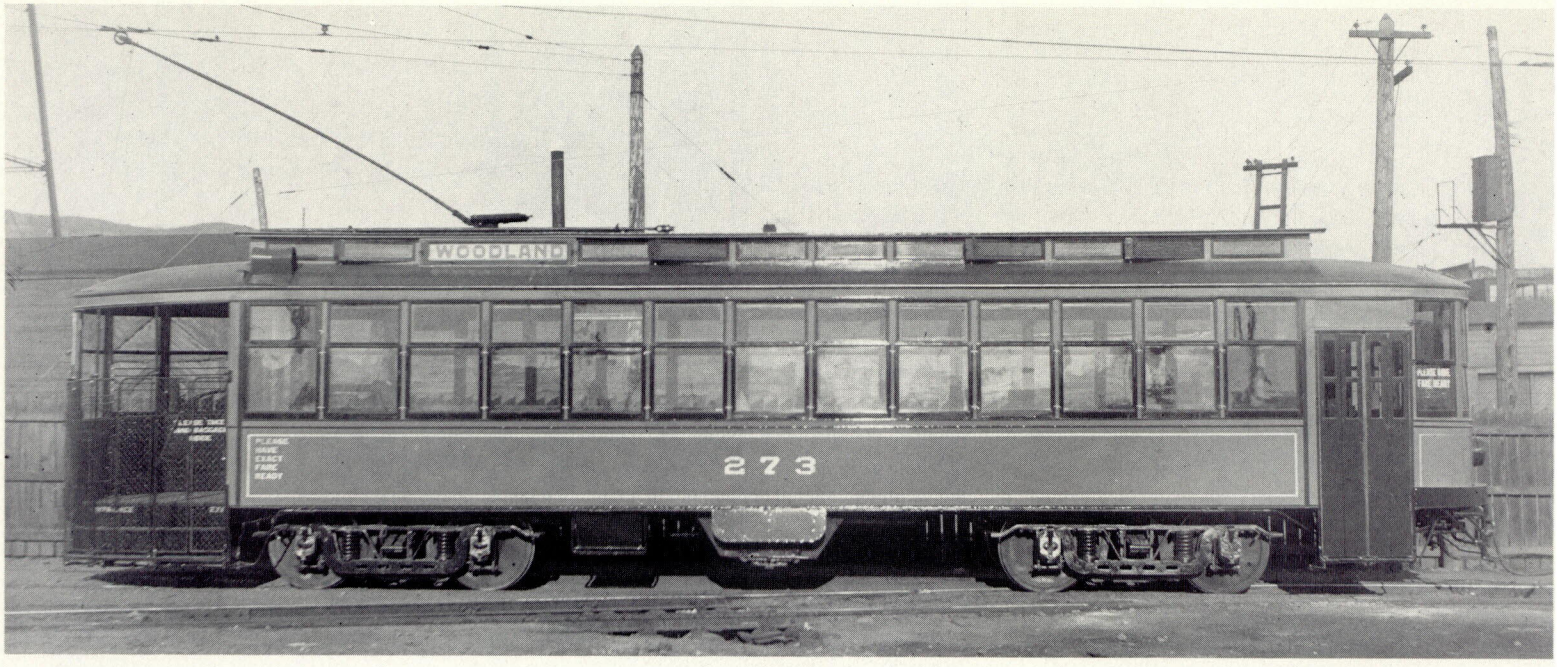
Twin City #6 trucks, G.E. 216 motors, K-37 controller and weight 49,600 lbs.: 223-232, 234, 236-239, 241-243, and 246-254.

Twin City #6 trucks, G.E. 216 motors, K-43-F2 controller, and weight 49,600 lbs.: 265, 266, and 268.

Twin City #9 trucks with G.E. 200 motors were later installed on 212 and 244 as well as on double end cars 255-256 on the "Highland Ave." line (the latter may have received different controllers also; Simplex safety equipment had been installed in June, 1930.)

Cars with Simplex Safety Equipment were: 163-180, 210-213, 215-219 and 244.

Cars with General Electric Safety Equipment were: 198-209, 214, 223-232, 234, 236-243, 245-254, 265, 266 and 268.

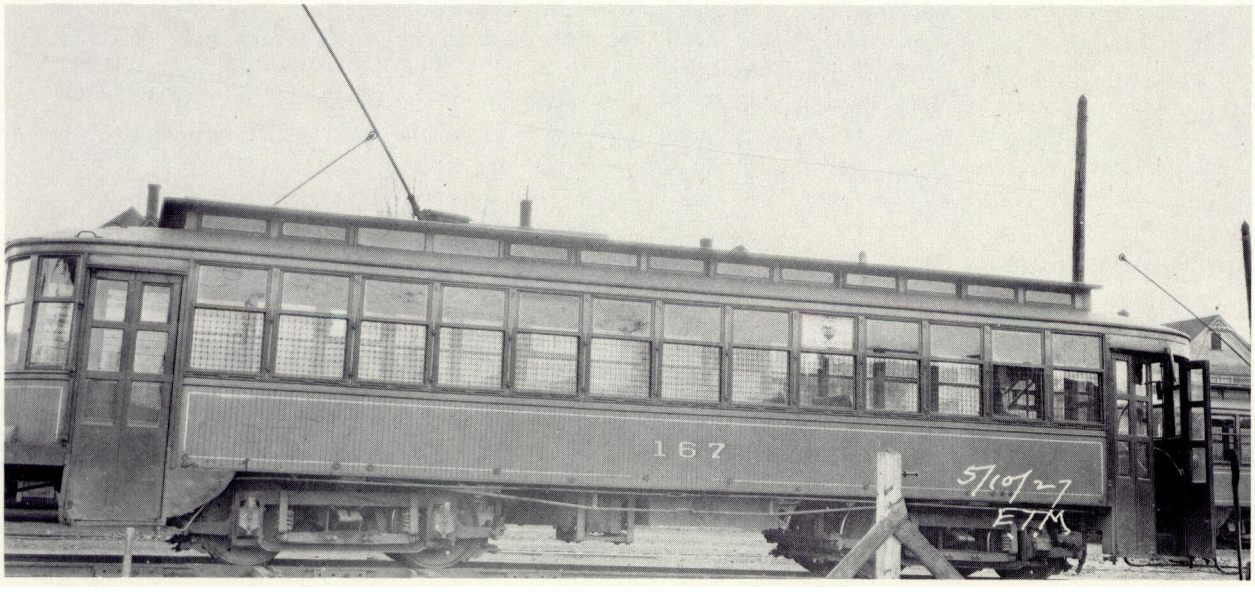


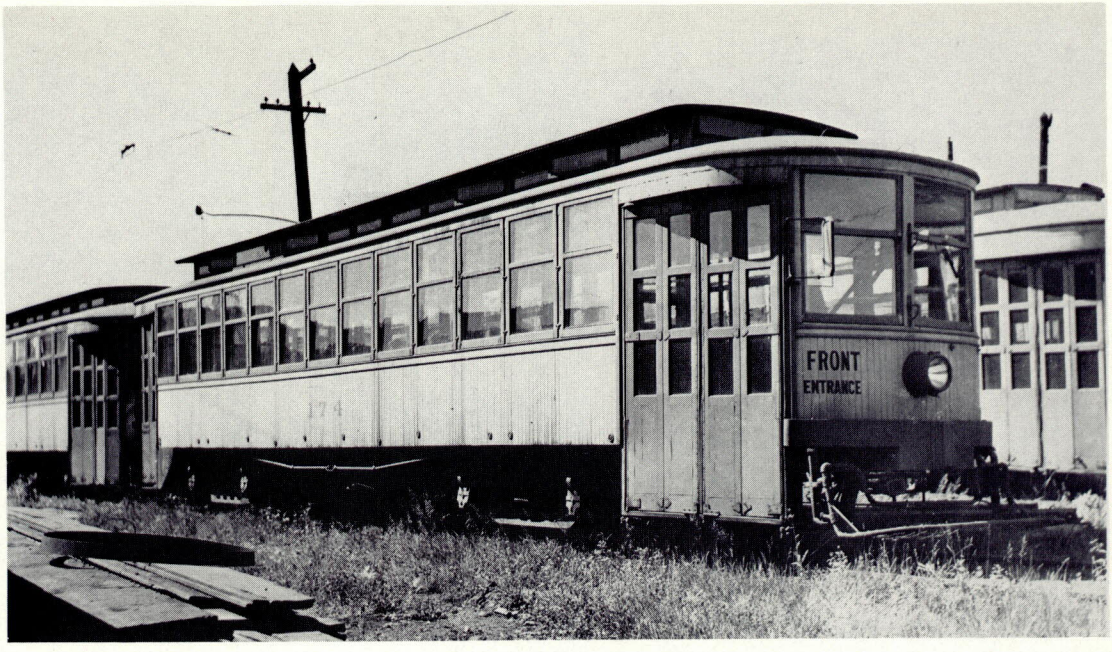
Above: Car 273 photographed October 31, 1923, after being rebuilt with front exit steps and folding doors.

Center: Although this photograph was taken to show accident damage, it is the only one located so far that shows the hinged emergency exit door on the rear platform of a rebuilt one-man car. Car 166 was photographed on January 29, 1925.

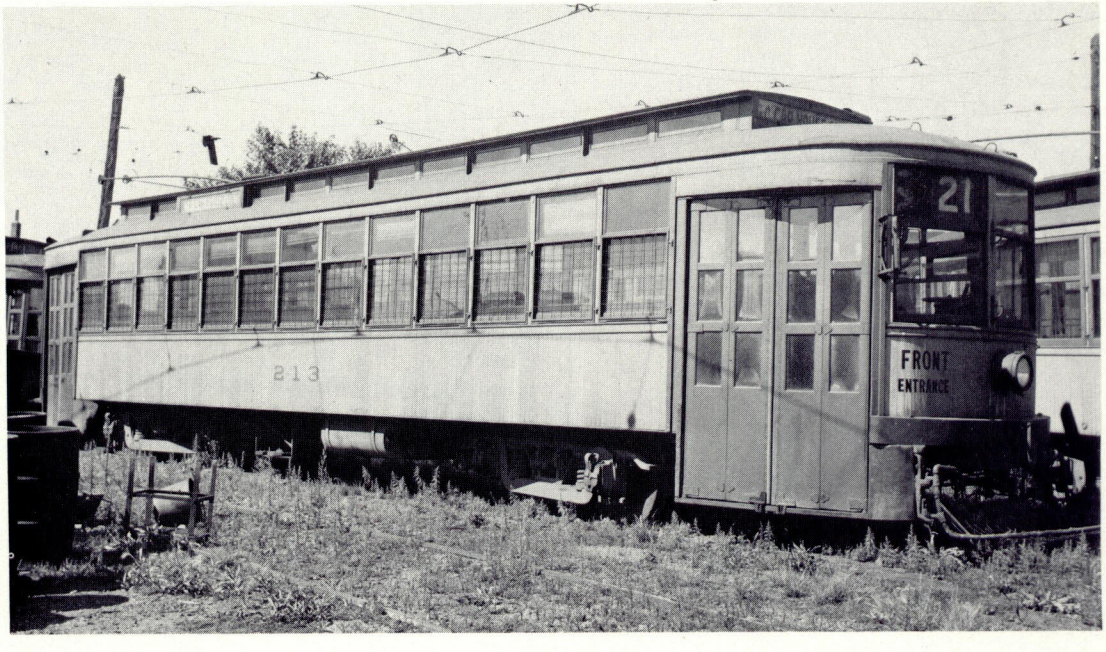
Below: Car 167 as rebuilt for one-man operation with folding doors at the rear platform emergency exit. Taken May 10, 1927, in the west yard at the Duluth carhouse.

(All photographs DSR; Wayne C. Olsen collection)



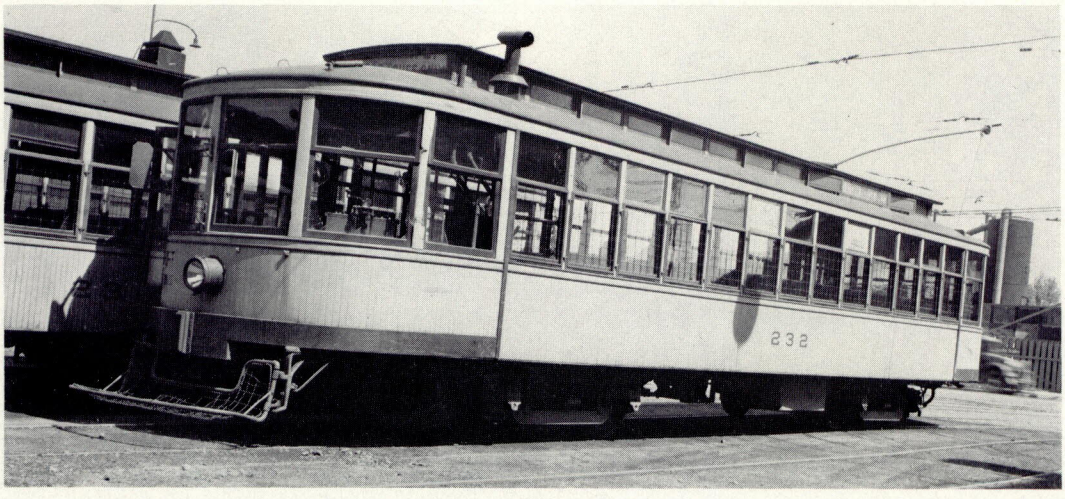


Above: Rebuilt one-man car 174 as it appeared toward the end of its useful life in 1938. (Stephen D. Maguire)



Center: Rebuilt one-man car 213 in 1937. (Robert M. Hanft)

Below: "Gate side" of rebuilt one-man car 266 on the ladder track in front of the Duluth carhouse. (Joe Hutchinson collection)

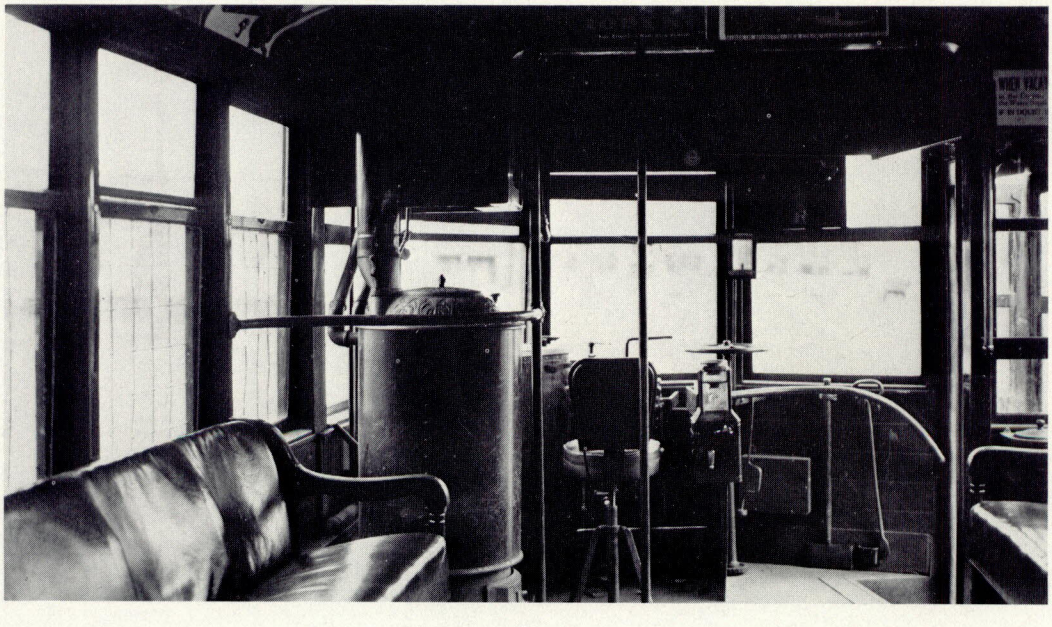


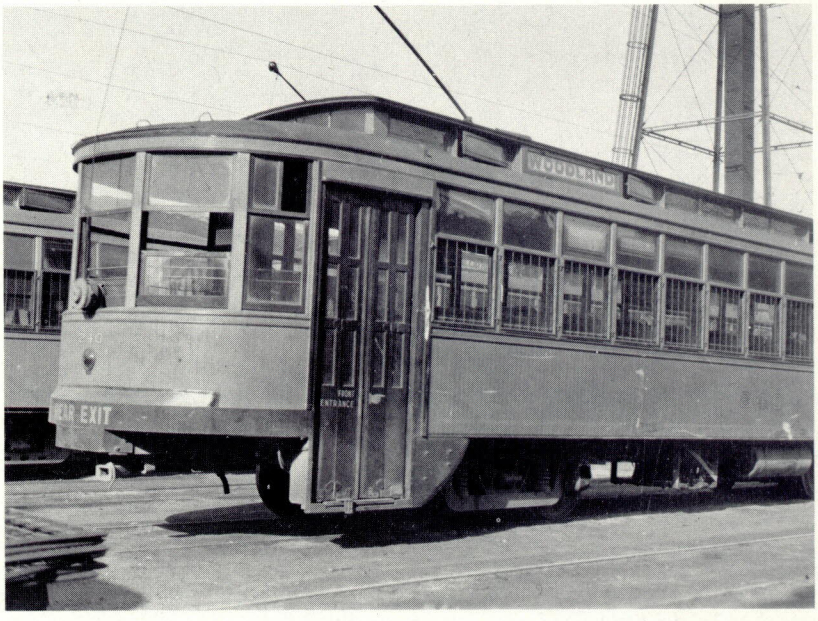
Above: "Pole side" of rebuilt one-man car 232 which shows the complete unusual window arrangement on the front platform.

Center: Head-on view of rebuilt one-man car 246 which more forcefully shows the off-center window design.

Below: Interior view of the front platform of a rebuilt one-man car which persuasively demonstrates that the entire front platform must have been designed solely with the interior layout in mind. Note the leather cushion seats.

(All photographs DSR; Wayne C. Olsen collection)

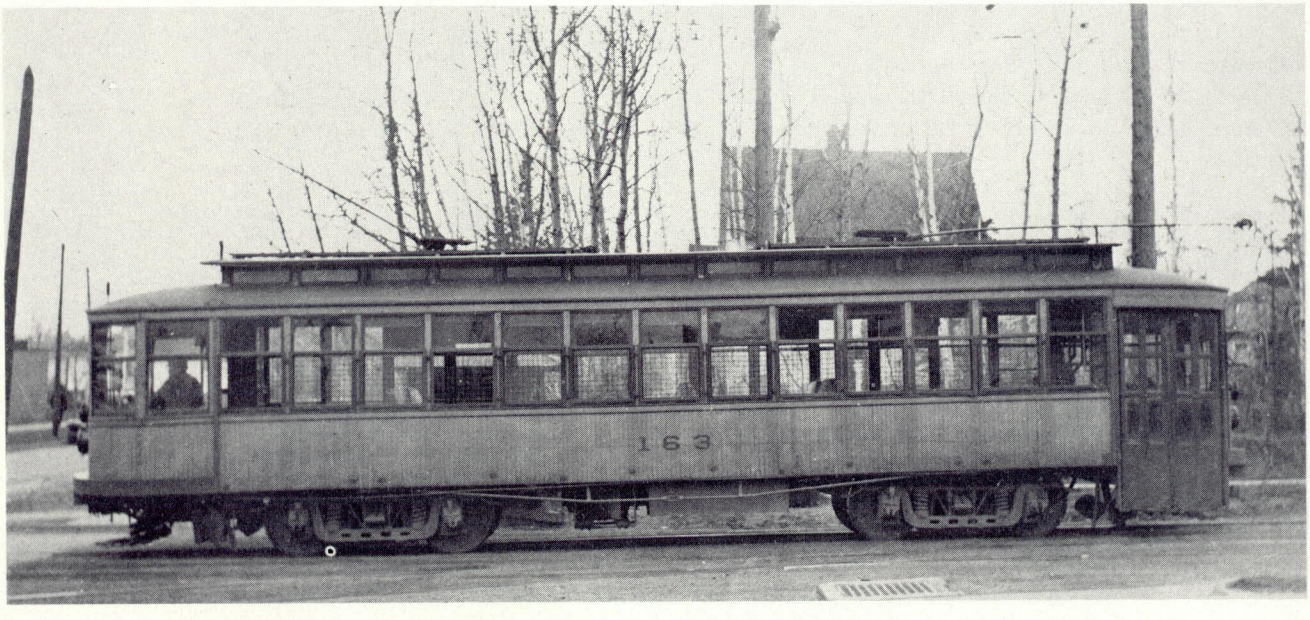




Above right: Rear platform of rebuilt one-man car 240 showing the rear door arrangement on those cars that had treadle steps for use as a rear passenger exit.

Above left: Interior view of the rear platform of a rebuilt one-man car showing the platform seat cushions and the backing-up controls. Note the rear bulkhead doors were retained.

Below: One-man car 163 rebuilt for double end operation on the "Crosley Ave." line.
(All photographs DSR; Wayne C. Olsen collection)



Disposition of TCRT-Built Passenger Equipment

1911

The body of incline railway car 63 was sold to an individual; the four G.E. 67 motors were placed on Flat Car 1/64.

1917

264 was wrecked September 21st on the C. St. P. M. & O. Ry. crossing at 13th St. and Hill Ave. in Superior.

1927

169 was wrecked January 6th when it was rammed broadside by the G.N. Ry.'s "Gopher" passenger train at the 21st St. crossing in Superior. Five streetcar passengers and the locomotive fireman were killed.

1931

Carbodies sold: 151-162. (151 and 158 became the trolley cafe in Cromwell, Minn.)

1934

Carbodies sold: 270.

1935

Cars retired: 184 and 188.

Carbodies sold: 181-183, 185-187, 189-198, 261, 269, and 271-278.

1936

Carbodies sold: 222, 233, 235, 257-260, 262-263, 267, and 289-294.

1937

Carbodies sold: 164, 165 and 167.

1938

Carbodies sold: 166, 168, and 177.

1939

Cars retired: 163, 171, 255, and 256.

Sold to West End Iron & Metal Co.: 220 and 221.

Burned in carhouse yard: 248 (This was the last car to operate in Duluth July 9th and was completely stripped by souvenir hunters.)

Carbodies sold: 170, 172-176, 178-180, 199-205, 207-209, 211-212, 215-216, 218, 224-225, 230, 232, 234, 236-237, 241, 243, 245, 250, 252, 254, 265, and 266.

Sold complete to the D. M. & I. R. R.R. in June: 268 (became their diesel-electric motor car W56).

1940

Scrapped in carhouse yard: 219 and 240.

Carbodies sold: 206, 210, 213, 214, 217, 223, 226-229, 231, 238, 239, 242, 244, 246, 247, 249, 251, and 253.

Disposition of Service Cars

1923

Sold for scrap to West End Iron & Metal Co.: Supply Car 62.

1931

Retired: Supply Car 131.

1933

Retired: Tower Car 1/67 and Ash Car Trailers with trucks from 47 and 51.

1935

Retired: Supply Car 1/88 and Flat Car 5/142.

1937

Flat Car 1/64 was sold in January to the Inter-State Iron Co., Calumet, Minn., for use on their electric railroad.

1938

Retired: Flat Car 1/65 (sold?) and Flat Car 6/143.

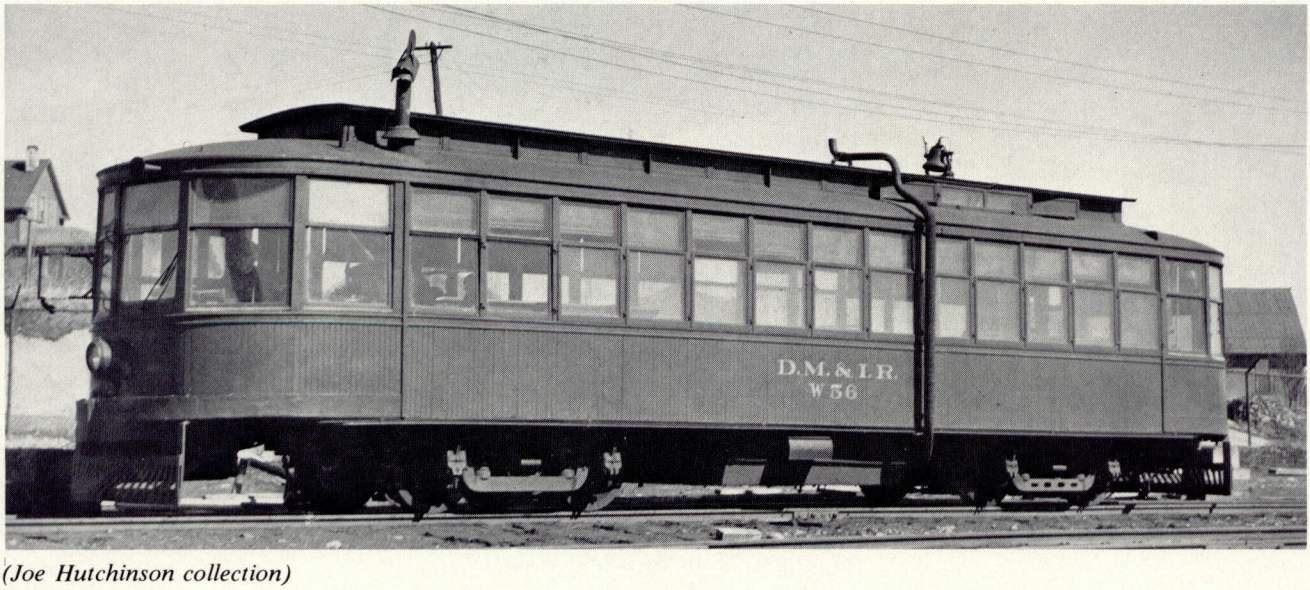
1939

Retired: Flat Cars 3/96 (scrapped 1940), 4/97, 7/144 and 8/145; Snow Plows 1/139, 2/66, 3/140 and 4/146 (scrapped 1940).

Scrapped: "Goliath".

1940

Retired: Wrecker 1/141.



(Joe Hutchinson collection)

Fargo & Moorhead St. Ry. 8 operating on the South Side loop line in Fargo. A lush growth of weeds between rails laid on an unpaved street was an inexpensive method to avoid dust problems. (Robert Bowes collection)

SECTION III
THE SMALLER STREET RAILWAY SYSTEMS

These companies served small villages and cities in characteristic styles ranging from the "small town-country atmosphere" to the busy commercial-industrial center. Consequently the equipment utilized was the short, single-truck, mechanically simple, and relatively inexpensive type of passenger car. Companies in the lesser populated communities succumbed more quickly to automobile competition. Those companies that survived the longest were owned by electric power utilities.

1. FARGO & MOORHEAD ST. RY.

Moorhead Minn. – Fargo, N. D.

Fargo is the largest city in North Dakota; it lies in the valley of the Red River of the North, an important farming region. It is also an industrial, meat-packing and transportation center. The N. P. Ry. and G.N. Ry. mainlines to the Pacific Northwest pass through here. Its smaller Minnesota counterpart is Moorhead located on the east side of the river. Streetcar lines in both cities were operated by the company located in Fargo, so our history will include both cities. By way of comparison, the 1915-1916 population figures were Fargo, 20,750 persons, and Moorhead, 5,702.

A horse car line was supposedly built in Fargo about 1879 by a group consisting of Jacob Lowell, Major A.W. Edwards, G.J. Keeney, E.S. Tyler and Charles A. Roberts. It was said to have run from the Great Northern Ry. tracks south on Broadway to Front St., to 9th St., to 13th Ave. So. and 9th St. Track was constructed on unpaved dirt streets and subsequently settled into the mud and deteriorated to the extent that efforts at repairs were futile and service had to be abandoned.

Another company was formed whose stockholders were J.S. Huntington, C.A. Roberts, C.W. Darling, E.S. Tyler (President), J.B. Raymond, W.A. Kindred (Treasurer), J.J. Shotwell (Secretary), J.E. Haggart, J.S. Woodruff, W.A. Yerxa (Vice President), and W.F. Ball (Attorney). Construction started May 23, 1882, on a horse car line in Fargo which ran from the Great Northern Ry. depot on Broadway and Front St. to the 9th St. bridge. Two cars provided service on the line which was opened June 7, 1882. On September 18, 1882, fire destroyed the horse car barn along with all equipment. Service was never resumed.

There were other attempts to start horse car lines or electric lines but the deplorable condition of the unpaved streets combined with financial complications prevented any actual construction. In July, 1902, the Fargo & Moorhead St. Ry. was incorporated in North Dakota (authorized to do business in Minnesota during November) by a group led by F.W. Larned and M.E. McDonald. These promoters soon encountered financial obstacles and sold their interests to L.B. Hanna, J.W. Smith, W.A. Scott, W.C. MacFadden and others. Apparently this new group re-incorporated under the original name as records indicate dates of February, 1903, in North Dakota and April, 1904, in Minnesota.

The first track construction took place in Fargo at 7th St. and 6th Ave. N. during 1904. The system was completed to an extent sufficient to open service on November 25, 1904, on the following lines:

Fargo: North Side loop line and South Side loop line, together utilizing four cars; and Oak Grove line utilizing one car.

Fargo & Moorhead St. Ry. 8 as it appeared when new. (Joe Hutchinson collection)

Moorhead: A line from Fargo over the Northern Pacific Ave. bridge (over the Red River of the North) to the Moorhead Normal School (Moorhead State College) ending at 7th Ave. So. and 12th St.

The original equipment consisted of seven single truck, closed, passenger motor cars and one snow plow. The latter was a single truck, double end, arch roof, wedge plow built by the J.G. Brill Co. (Order #14799, November, 1905); assigned the number 1 it was also used in maintenance-of-way service. The carhouse was located at 1st St. and Northern Pacific Ave. in Fargo. Power was supplied by the Union Light Heat & Power Co. which installed one 150 KW generator driven by one vertical Buckeye steam engine.

Subsequent track construction programs included the following:

Fargo: (1) a line to the North Dakota Agricultural College, authorized in 1905; (2) a siding on Broadway near Northern Pacific Ave., authorized June, 1905; and (3) a line to the North Dakota Fairgrounds, authorized in June, 1906.

Moorhead: (4) a line from Center Ave. to the Clay County courthouse and St. Ansgar Hospital, ending at 8th Ave. No. and 10th St., placed in operation during 1905.

A new carhouse was built during 1906 on 11th St. N. between 2nd and 3rd Ave. No. (216 11th St. N.) in Fargo. Offices were moved to 612 Northern Pacific Ave., Fargo. A second engine-generator unit (similar to the first) together with one 550 volt D.C. motor-generator set were installed by the power company to meet the increased power requirements.

Four passenger motor cars and one snow sweeper were purchased during 1905. A considerable amount of equipment was purchased second-hand from the Twin City Rapid Transit Co. in 1905 and 1906, much of it intended for use in service to the Fairgrounds:

Acquired during 1905: Ex TCRT 687-688, single truck, open passenger motor cars built by American Car Co. in 1893; Ex TCRT 466, 476, and 480, single truck, closed passenger motor cars built by J.M. Jones' Sons Co. in 1891; and Ex TCRT 235, 238, 244-247, 256-258, 260-262, single truck, open trailers (former horse cars) built by J.M. Jones' Sons Co. in 1888.

Acquired during 1906: Ex TCRT 638, 639, 651 and 675, single truck, open passenger motor cars built by American Car Co. in 1893; Ex TCRT 1591, 1592 and 1629, single truck, open passenger motor cars built by LaClede Car Co. in 1893; and Ex TCRT 207, 213, 219, 224-226, single truck, open trailers (former horsecars) built by Pullman's Palace Car Co. in 1888.

The 1907 U.S. Census reported the following data. First main track 10.00 miles (9.23 miles span wire and .77 miles side bracket construction), sidings 0.34 miles, and total track 10.34 miles, constructed of 48 to 70 lb. rail. Equipment comprised 41 passenger cars (14 closed and 27 open), 1 work car, 1 snow plow and 1 snow sweeper. Of the 44 total cars, 21 had two motors, 1 had three motors, and 22 were trailers.

In 1908 a flat trailer, fitted with slatted sides, 36'6" long, was purchased from the D.W. Mitshkum Co. and assigned the number 100. Pulled by snow plow 1 the car was used to haul livestock from the various railroads to the Fairgrounds.

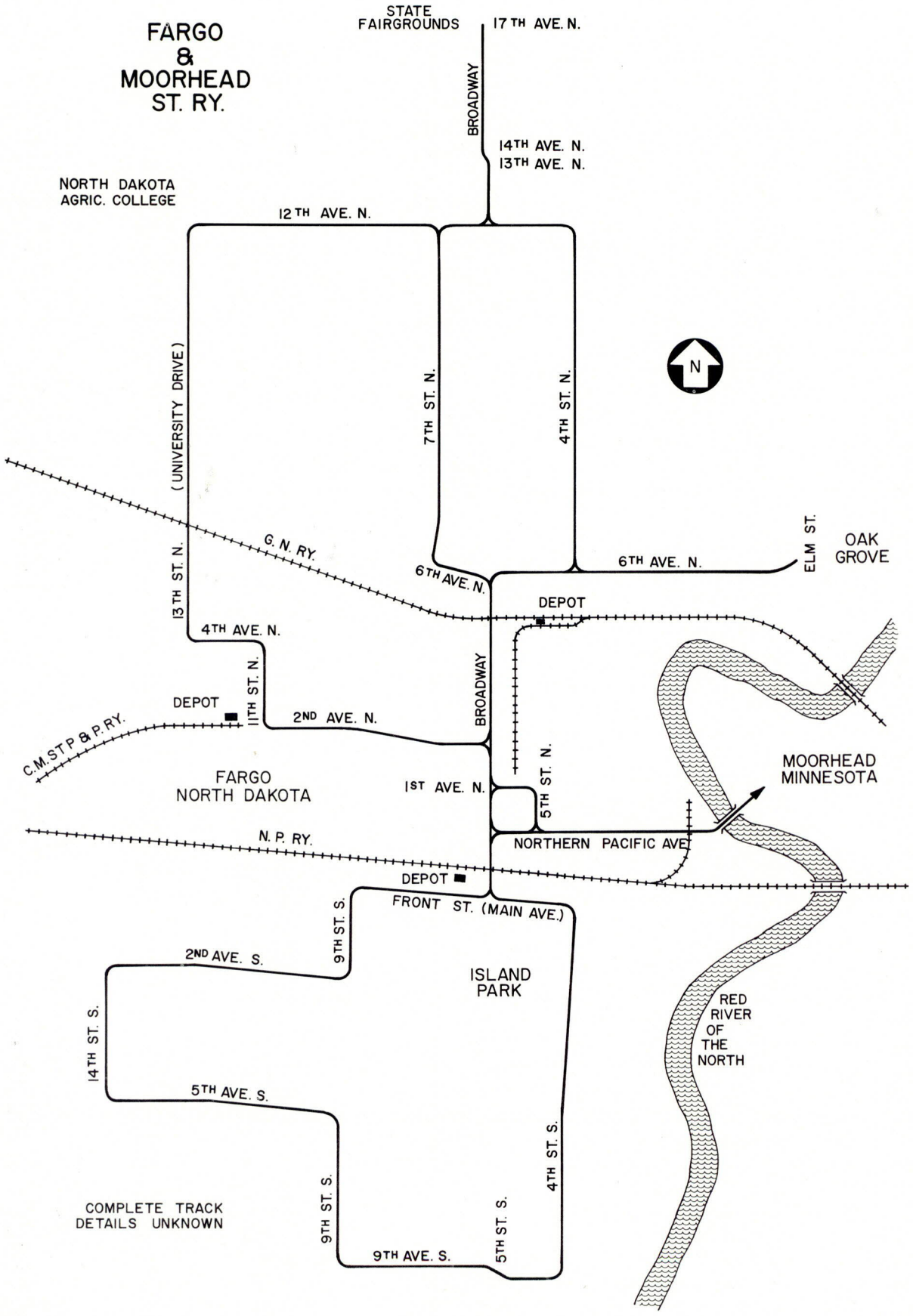
The Consumers Power Co. was organized in August, 1910, and acquired the street railway system on August 11, 1911. The railway was operated as a separate company under the general supervision of the manager and general superintendent. A new line was constructed in Moorhead from 10th St. and 2nd Ave. No. to the Northern Pacific Ry. roundhouse and shops at Dilworth, Minnesota, 3.65 miles long (of which several miles was through open country), and placed in service December 9, 1912. Total track mileage in Moorhead was then 7.27 miles. Also in 1912 one single truck snow sweeper (26' long) was ordered from the McGuire-Cummings Mfg. Co. A 28' double truck, deck roof, double end, closed passenger motor car (probably #15) was acquired second-hand from the Philadelphia Rapid Transit Co. (#1906, J.G. Brill Co. order 12402, November, 1902) May 15, 1913. One double end, deck roof, passenger motor car, #10, (33' long) of wood construction was ordered from American Car Co. (1030) July, 1914, and received in October.

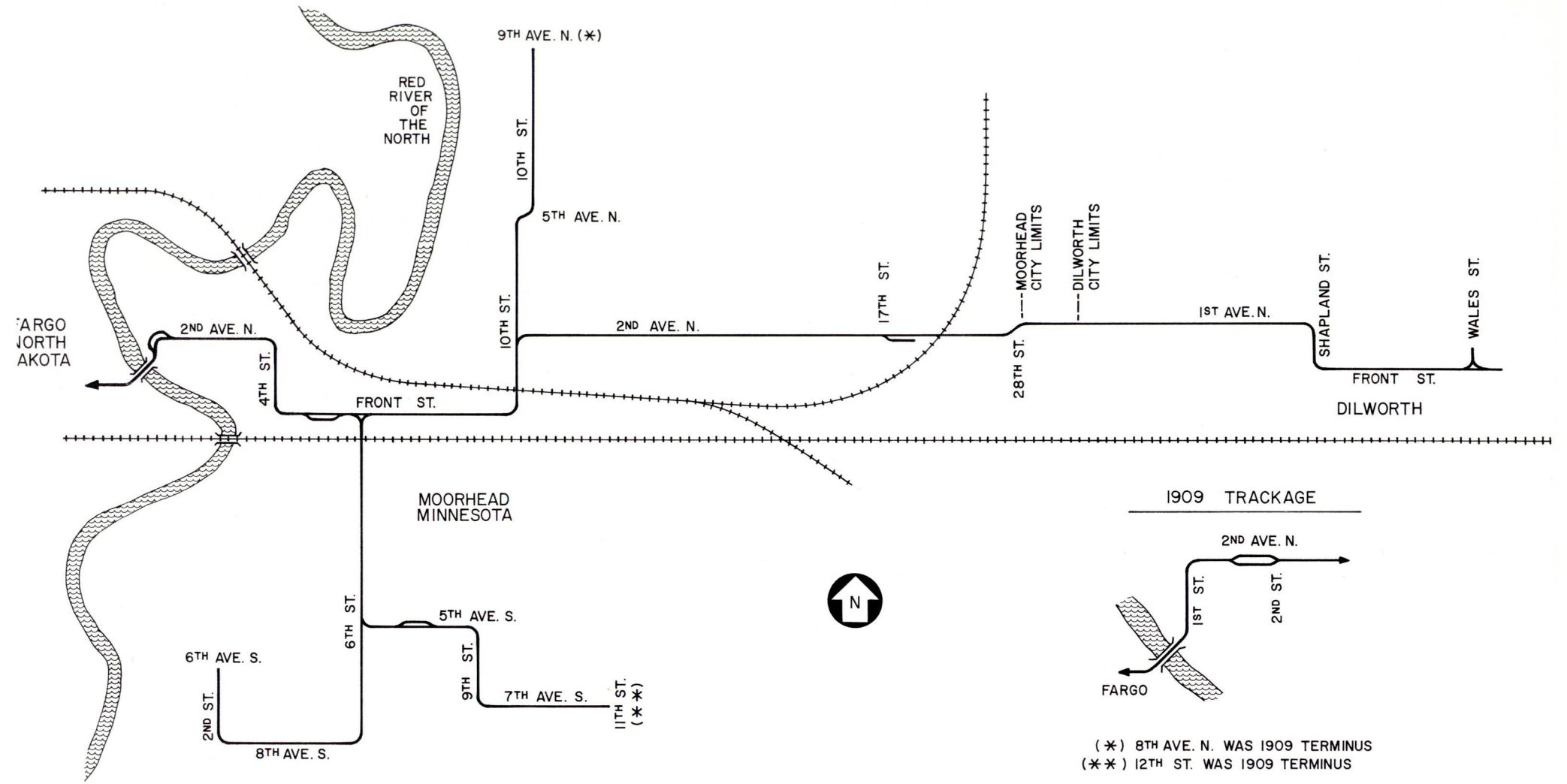
The power plant of the Union Light Heat and Power Co. underwent a rebuilding in 1915 and 1916; as part of the total modernization program all reciprocating engine units were removed except for one street railway unit; one new motor-generator set was installed for street railway purposes. In April, 1916, Consumers Power Co. became part of Northern States Power Co. which also acquired the Union Light Heat & Power Co. Transit directory figures for 1916 indicate the size of the operation at this time: 15.584 miles of track (Moorhead track mileage was 7.19 miles in 1917.); and 21 passenger motor cars, 21 passenger trailers, 2 work cars, 1 snow plow and 2 snow sweepers.

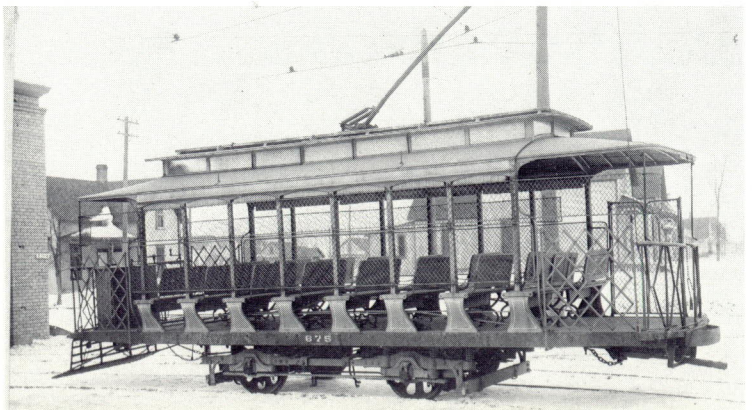
According to a 1918 directory the company was controlled by Northern States Power Co. and operated by H.M. Byllesby & Co., Chicago.

Under Northern States Power Co. control, an equipment modernization program was undertaken through the purchase of single truck, double end, lightweight Birney cars: 15 cars, numbered 12-14 and 16-27, built by Cincinnati Car Co. in 1920 (equipped with a Cincinnati #139 truck); 1 car, number 28, built by American Car Co. in 1923 (equipped with a Brill 79E1 truck).

During 1923 a line was built in Moorhead from 5th Ave. So. and 6th St. to Concordia College, ending at 2nd St. and 6th Ave. So. At the power plant the last remaining steam engine-generator unit for street railway use was removed, also in 1923. Apparently the one motor-generator unit was sufficient for total substation capacity was subsequently listed as 200 KW. It is interesting to

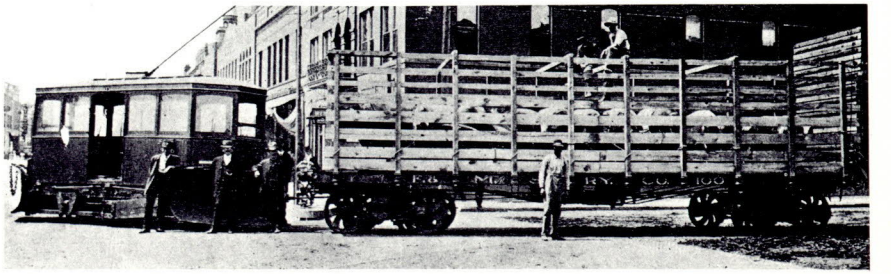

FARGO
&
MOORHEAD
ST. RY.
STATE
FAIRGROUNDS
17TH AVE. N.
BROADWAY
14TH AVE. N.
13TH AVE. N.
NORTH DAKOTA
AGRIC. COLLEGE
12TH AVE. N.
(UNIVERSITY DRIVE)
7TH ST. N.
4TH ST. N.
N
G. N. RY.
13TH ST. N.
6TH AVE. N.
6TH AVE. N.
ELM ST.
OAK
GROVE
DEPOT
4TH AVE. N.
11TH ST. N.
DEPOT
2ND AVE. N.
BROADWAY
C.M.ST.P.&P.RY.
FARGO
NORTH DAKOTA
1ST AVE. N.
5TH ST. N.
MOORHEAD
MINNESOTA
N. P. RY.
NORTHERN PACIFIC AVE.
DEPOT
FRONT ST. (MAIN AVE.)
9TH ST. S.
2ND AVE. S.
ISLAND
PARK
14TH ST. S.
RED
RIVER
OF
THE
NORTH
5TH AVE. S.
4TH ST. S.
9TH ST. S.
5TH ST. S.
COMPLETE TRACK
DETAILS UNKNOWN
9TH AVE. S.

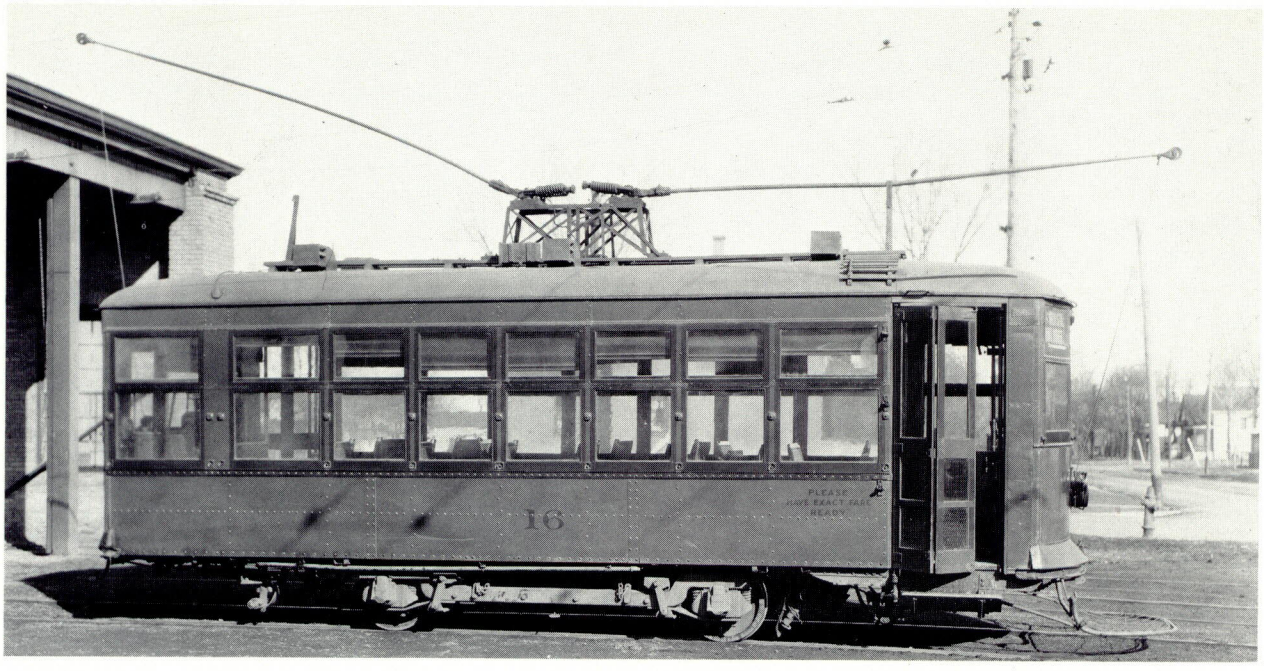




Left: Open motor car 675 acquired second-hand from the Minneapolis St. Ry. at the Fargo carhouse. This car was scrapped in 1920. (Joe Hutchinson collection)

Right: Live stock hauling operations consisted of Snow Plow 1 pulling trailer 100, running between downtown Fargo and the Fairgrounds. (Electric Railway Journal)





note that fares charged at this time were 7 cents cash, school children 5 cents cash, and tokens 4 for 25 cents or 17 for $1.

Very little information has been located pertaining to the operation of the street railway system during the 1920's and 1930's. Data obtained from transit directories of this period provide the following data.

Equipment owned:

1923-1925: 29 passenger motor cars, 16 passenger trailers, 4 service motor cars and 2 service trailers.

1926: 26 passenger motor cars, 14 passenger trailers, and 5 service motor cars.

1927: 26 passenger motor cars (16 active, 6 extra, 5 obsolete), 9 passenger trailers (all obsolete), and 5 service trailers.

1928: 25 passenger motor cars, 1 passenger trailer, 5 service motor cars, and 1 service trailer.

Above: Birney car 16 photographed at the Fargo carhouse March 4, 1924. Note the Twin City style fender used.

Below: Downtown Fargo in the 1930's. A Birney car is awaiting a meet on the passing track on Broadway Ave.

(Both photographs Joe Hutchinson collection)

1933: 16 passenger motor cars (all Birney cars), 1 passenger trailer, and 6 service motor cars.

Track Mileage:

1923: 15.81 miles total.

1926-1927: first track 15.633 miles, sidings 0.835 miles, total track 16.468 miles.

1928: first track 13.326 miles, sidings 1.048 miles, total track 14.374 miles.

1929: first track 13.696 miles, sidings 1.048 miles, total track 15.017 miles.

1930-1932: 15.16 miles total.

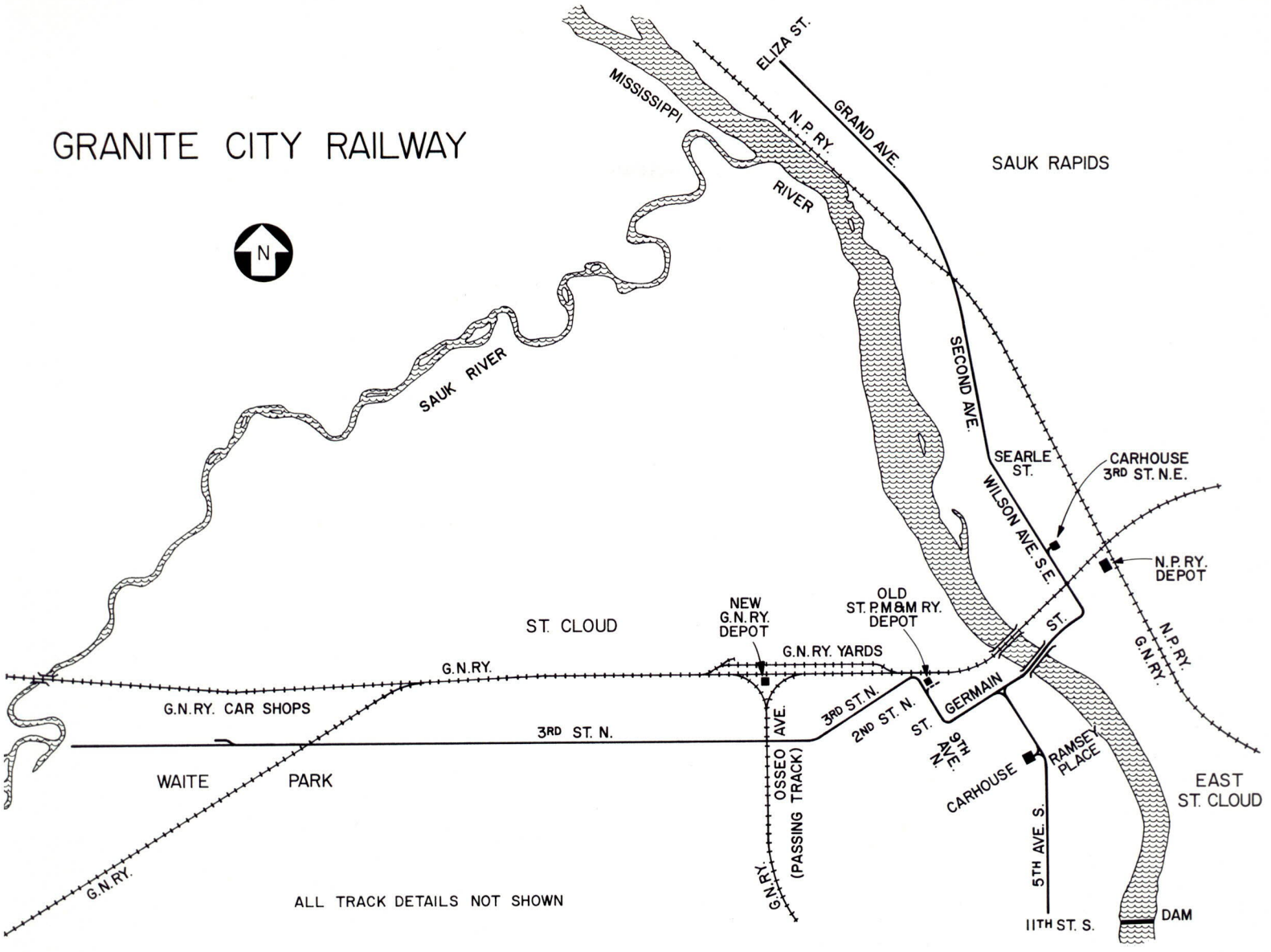
1933: 14.99 miles total.

1934: 13.453 miles total.

1935-1937: 13.87 miles total.

Track mileage figures for Moorhead, Minnesota, alone were reported as: 1922 — 6.33 miles; 1926 — 7.04 miles; 1927 — 6.95 miles; and 1932: 6.92 miles.

The last local line in Moorhead was abandoned June 30, 1937. The through line from Fargo via Moorhead to Dilworth was abandoned July 2, 1937; the last regular car was 27 with a specially chartered last car following being 14. The last line in Fargo, the South Side Loop line was abandoned August 21, 1937.



2. GRANITE CITY RAILWAY

St. Cloud and Sauk Rapids, Minn.

St. Cloud (1917 population 10,600) was an early railroad and lumbering center in addition to being the site of extensive granite quarries. The adjacent community of Sauk Rapids had a population of approximately 1,700. Early records indicate that two separate corporations were formed in March, 1883: the St. Cloud St. Ry. and the Sauk Rapids R.R. No construction was undertaken by either company.

The St. Cloud City Street Car Co. constructed the first horse car line in St. Cloud during 1887. Officers of the company were: C.P. McClure (President), O.W. Baldwin (Vice President), Frank Tolman (Secretary), and A.G. Whitney (Treasurer). The route of this line was on 5th Ave. So. from 11th St. So. to St. Germain St., on St. Germain to 9th Ave. No., thence north two blocks and east one block to the Great Northern Ry. passenger depot. All single track (30 lb. flat rail), the line was opened October 3, 1887, using two cars. The 1890 U.S. Census reported 1.60 miles of 4'2" gauge track, 2 horse cars and 10 horses. During the summer of 1891 negotiations were in progress with the objective of selling the company to outsiders who would electrify it and make extensions to the Great Northern Ry. car shops at Waite Park, and to Sauk Rapids.

The company was sold September 8, 1891, to Howard C. Levis, St. Paul, Minn., Vice-President and Treasurer

of the Northwest Thomson-Houston Electric Co. The company was re-organized October 1, 1891; H.M. Byllesby was President and W.P. Johnson, Secretary.

The city donated right-of-way for the extension to Waite Park and 3 miles of track were laid on this extension during 1892. Meanwhile work was in progress electrifying the original line. On June 9, 1892, it was announced that work was to begin on the extension to Sauk Rapids. One source reports that the Waite Park extension was opened June 24, 1892. Another source says that the first electric cars began operating Saturday afternoon, June 30, 1892, over the line located as follows: 5th Ave. So. from 10th St. So. to St. Germain St., St. Germain St. to 9th Ave., 9th Ave. to 3rd St., and on 3rd St. through Waite Park past the Great Northern Ry. car shops to the Sauk River where a wye was located. Three cars were used to provide 20 minute service while the fourth car was a spare. These first four cars were built by Northern Car Co., Robbinsdale, Minn., and used Thomson-Houston Co. electrical equipment. The carhouse was located on 3rd St. N. in the vicinity of the ball park.

The line to Sauk Rapids from the east end of the St. Germain St. bridge was completed in October, 1892. It was not until June 6, 1894, that structural modifications to the bridge were completed and the first car crossed the bridge and operated into downtown St. Cloud. (This was the reason for building a separate carhouse on the Sauk Rapids line.)

Trade journal directories for this period provide the following information:

St. Cloud Street Car Co.: 1892: 4 miles of track, 4 motor cars; and 1893: 10 miles of track, 8 motor cars.

St. Cloud & Sauk Rapids Ry.: 1892-1893: 3 miles of track, and 2 motor cars.

Three lines were operated during 1893: (1) 5th Ave. So. and 11th St. to Waite Park, (2) 5th Ave. So. and 11th St. to the Great Northern Ry. station, and (3) Sauk Rapids.

It was reported on June 22, 1895, that the St. Cloud Street Car Co. was sold by the sheriff to C.N. Harkins of Minneapolis to satisfy a personal property tax judgement. Another source states that in August, 1895, the St. Paul Title Insurance & Trust Co. began proceedings for appointment of a receiver by reason of defaulting on interest payments on $125,000 of mortgage bonds. E.E. Clark was appointed receiver until a re-organization could be effected. In May, 1896, it was reported as still being in receivership, operating six cars over 10 miles of track.

The Benton Power & Traction Co. was incorporated in September, 1897, headed by C.M. Hertig and subsequently acquired the street railway system. On December 12, 1898, the carhouse was destroyed by fire together with four passenger cars and one snow plow; two cars in the east barn (one an open car) and one car not in the barn were saved. This company opened a new commercial electric generating plant located on 5th Ave. No. on November 7, 1900.

In 1900 A.G. Whitney organized the Light, Heat, Transit and Public Service Co. which subsequently purchased the Benton Power & Traction Co. and the St. Cloud Gas & Electric Co.

The 1902 U.S. census provided the following information: first main track 7.46 miles, second main track 0.53 miles, sidings 0.67 miles, total track 8.66 miles; and seven closed passenger cars and one open passenger car; of these seven were motorized and one was a trailer.

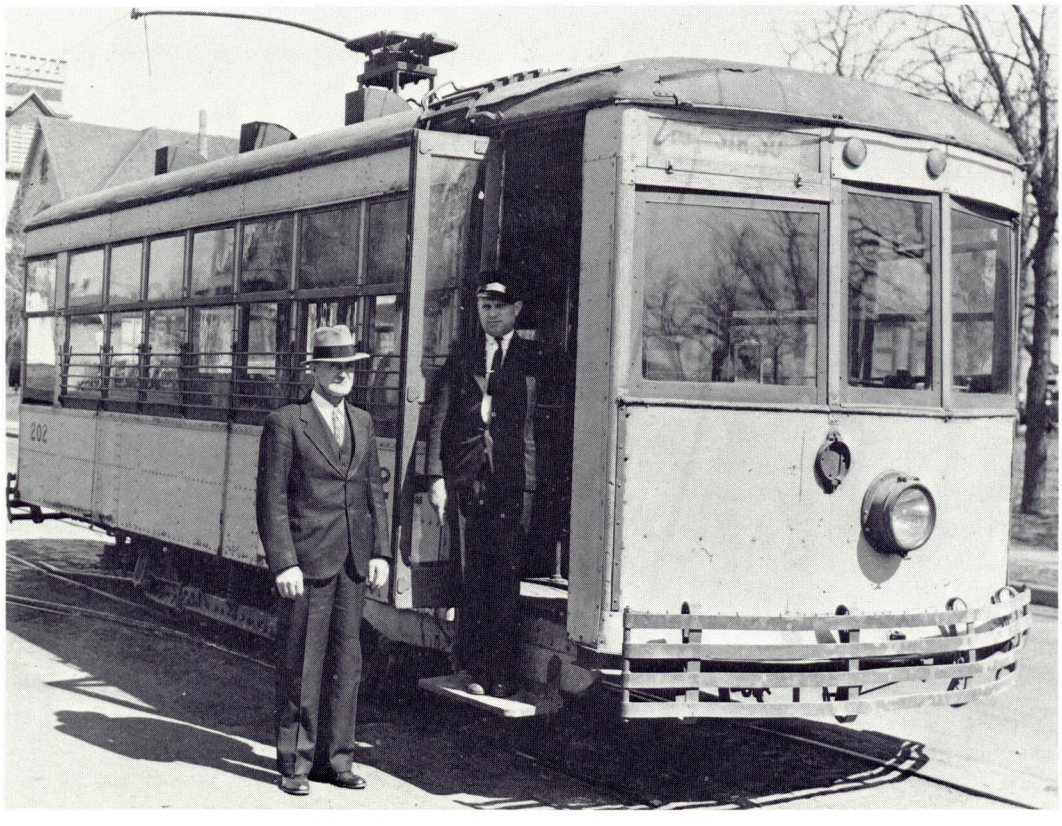
Some equipment was purchased second-hand from the Duluth St. Ry. in 1903: Ex DSR 33 and 36, single truck, closed passenger motor cars, built by LaClede Car Co. 1891; and Ex DSR 105, 108, 109, single truck, closed passenger cars (without motors) built by Pullman Palace Car Co. in 1890 for the Superior Rapid Transit Ry.

Above: A car on the "Great Northern Station" line operates in circus parade crowds on St. Germain St., St. Cloud (Frank Butts collection)

Below: Birney car 202 awaiting disposal outside the St. Cloud carhouse after the end of operations. (Robert M. Hanft; Joe Hutchinson collection)

Above: A line of single truck passenger cars and a work car at the St. Cloud carhouse about 1915. The car at right is #11. (Northern States Power Co.; Ken Fletcher collection)

Below: Birney car 202, painted yellow, during the last month of operation, April, 1936. Motorman Andrew Fowler is shown with Superintendent John Bohte. (Northern States Power Co.; Ken Fletcher collection)



In December, 1904, the Public Service Co. was incorporated and took over the gas and electric utilities. The Granite City Ry. was incorporated in January, 1906, and took over the street railway system. During 1907 the new company purchased some equipment second-hand from the Twin City Rapid Transit Co.: Ex TCRT 570, 577, 579, 581, single truck, closed passenger motor cars built by J.M. Jones' Sons Car Co. in 1888 and rebuilt by TCRT in 1892 to 22' length.

Thus the 1907 U.S. Census provided the following information: first main track 8.00 miles, sidings 0.50 miles, total track 8.50 miles; two carhouses; fifteen closed passenger cars and two snow plows, a total of seventeen cars of which fourteen were motorized (two motors) and three were trailers. Trailers were used on the Waite Park line as the Great Northern Ry. employed 800 men at their car shops.

Offices of the company were located at 507 St. Germain St. while the carhouse was located at 319-329 5th Ave. So. (Ramsey Place and 5th Ave. So.).

Additional equipment was purchased second-hand from the Duluth St. Ry. in 1910: Ex DSR 69, 71, 76, 77, single truck, closed passenger motor cars built by LaClede Car Co. in 1893.

Equipment orders listed in the Electric Railway Journal were as follows: 4 City cars, 37' long, McGuire-Cummings single truck, from St. Louis Car Co. in 1910 (Probably never built; DSR cars purchased instead.); 1 Work Car, 22' long, single truck, from McGuire-Cummings Mfg. Co. in 1911; and 4 City cars, 22' long, McGuire-Cummings single truck, from Jones' Sons Car Co. in 1912. (Probably never built.)

Four cars were acquired second-hand about 1911-1912 from International Railways, Buffalo, N.Y. Ex 469, 480, 483 and 484 were double end, deck roof, double truck, 24' bodies built by J.G. Brill Co. on order #6976 of January, 1896, for the Crosstown Ry. of Buffalo. Brill 27-F trucks for these cars were acquired from Cleveland Rys., Cleveland, Ohio.

The St. Cloud Public Service Co. was incorporated in 1915, (A.G. Whitney, President) and on June 29 purchased the Union Power Co., Public Service Co., and Granite City Ry. Apparently the Granite City Ry. retained its corporate identity; trade directories continued to use this name although equipment orders were listed in the name of St. Cloud Public Service Co. W.N. Bethel was Superintendent of Railways for St. C. P. S. Co. Power was purchased from the St. Cloud Public Service Co.; substation capacity for the street railway operations was given as: 1918: 450 KW (three units, manufactured by Triumph Electric Co. and Sprague), 550 volts D.C.; and 1923: 600 KW.

Equipment orders listed in the Electric Railway Journal were: 2 City cars, 34' long, one man operated, semi-steel construction, ordered in 1916; 4 City cars, 34' long, ordered in 1918; and 2 single truck, double end, Birney cars. The latter were numbered 201-202, built by American Car Co. in April, 1919, equipped with General Electric motors and a Brill 78M1b truck.

Northern States Power Co. acquired the St. Cloud Public Service Co. in 1924 and operated the street railway system until its abandonment. Very little information has been located on operations in the 1920's and 1930's and we are forced to rely on directory data to provide a grasp of the situation.

Equipment owned:

1918: 17 motor cars and 3 other cars.

1923-1925: 19 passenger motor cars (all one man) and 1 service motor car (snow plow).

1926: 10 passenger motor cars; 1 service motor car.

1927: 9 passenger motor cars (7 active, 1 extra); 1 service motor car.

1928: 10 passenger motor cars (8 active, 2 extra); 1 service motor car.

1929: 8 passenger motor cars; 1 service motor car.

1930-1934: 9 passenger motor cars; 2 service motor cars.

1935: 4 passenger motor cars; 2 service motor cars.

Track Mileage:

1918: 9.5 miles total.

1923-1925: first track 8.20 miles, sidings 0.20 miles, total track 8.40 miles.

1926: first track 7.75 miles, sidings 0.49 miles, total track 8.20 miles.

1927: first track 7.52 miles, sidings 0.49 miles, total track 8.01 miles.

1928: first track 7.35 miles, sidings 0.46 miles, total track 7.81 miles.

1929-1934: first track 7.35 miles, sidings 0.36 miles, total track 7.71 miles.

1935: 4.88 miles total.

Mr. Bethel reported that the most prosperous years were from 1918 through 1920. A gradual decrease in earnings was subsequently experienced, with a very rapid decrease from 1931 through 1933.

The Sauk Rapids line was abandoned June 1, 1933; this involved the trackage from 5th Ave. So. and St. Germain St. to the end of the line in Sauk Rapids. The very last streetcar operation took place Wednesday, April 29, 1936, when Birney car 202 made the last run from Waite Park to 5th Ave. So. and 11th St., pulling into the carhouse at 11:15 P.M.

The fare at this time was 10 cents from 11th St. and 5th Ave. So. to 3rd St. N. and 37th Ave. (the city limits) plus an additional 5 cents to Waite Park.

Four cars remained in service the last few years of operation. According to the local newspaper these were one large 22-ton car, two small 6-ton cars, and one 12-ton car; they were numbered 101, 201, 202 and 93. In addition there were 1 snow sweeper and 1 work car. The fate of these cars is unknown except that 101 was sold to the local Boy Scouts for conversion into a lodge.

Cars 11 and 9 inside the Winona carhouse, 1936. (Frank Butts)

3. WINONA RAILWAY & LIGHT CO.

Winona, Minn.

Winona is a manufacturing, lumbering and wheat shipping center (1917 population 18,583 persons) located on the Mississippi River. The Winona City Ry. Co. was incorporated in May, 1883, by T.T. Hayden, John A. Mathews, Royal D. Cone, C.H. Porter and Charles Horton, with offices at 119 Center St. A horse car line was constructed during 1883 from E. 3rd St. and Chatfield St., on 3rd St. west to Johnson St., south on Johnson to 5th St., and west on 5th St. to the Winona Wagon Works at the C. M. & St. P. R.R. crossing. Eight new horse cars (1-8) were purchased from a St. Louis carbuilding firm and operations began December 25, 1883. The horse car barn was located at E. 3rd St. and Mankato Ave., one block west of the east end of the line, had a capacity of 14 cars and 36 horses, and was equipped with a transfer table. The company's franchise required construction of a second line running from the C. M. & St. P. R.R. depot at Center and Mark Streets to the C. & N. W. Ry. depot at 2nd and Huff Streets, which was subsequently completed. By 1890 the company owned 4.82 miles of 3'6" gauge track (27 lb. rail), 10 horse cars and 36 horses.

Electrification was undertaken in 1891. Regular service began January 22, 1892, with five single truck, 16' closed passenger motor cars, 11-15, built by Northern Car Co., Robbinsdale, Minn. (They were 24' 10" long overall and 7' 2" wide.) The horsecar barn was used for electric operation until a three track, 42' x 105' brick carhouse-repair shop was built next to the powerhouse at 58 Johnson St. The "Depot" line used one car, operating from Center and Mark Streets to 2nd and Huff Streets. The "Main" line used three cars, operating from W. 5th and Jackson Streets to E. 3rd and Chatfield Streets.

By 1896 the company was in receivership; it was succeeded by the Winona Railway & Light Co. During 1900 the "Depot" line was discontinued, part of the track abandoned, and the "Lake" line constructed on Howard and Dacota Streets from Center St. to Lake Winona. A wooden trestle across the lake was completed in early 1901; the line was extended, ending at a platform on the south end of the trestle adjacent to the Chicago Great Western Ry. track. This line served Woodlawn Cemetery and Bluffside Park; the latter had a dance pavilion and an outdoor theater at which free movies were shown by the company to stimulate patronage. Two closed passenger motor cars, 16-17, were acquired, one second-hand in 1900 from Illinois. The 1902 U.S. Census listed 4.50 miles

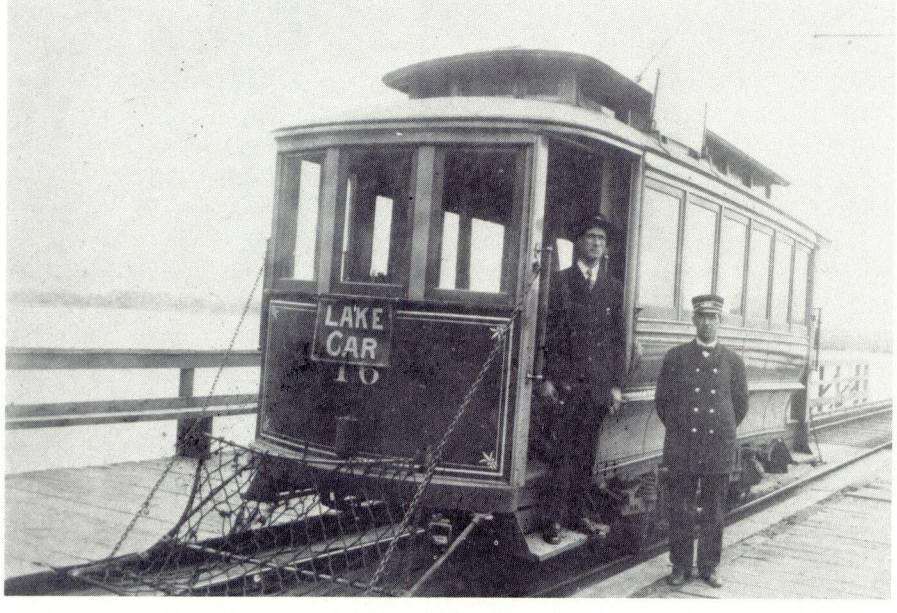
first main track, 0.15 miles sidings, and 4.65 miles total track; equipment comprised 7 closed passenger cars, 2 open passenger cars, 1 work car and 1 snow sweeper (9 motor cars and 2 trailers). A snow sweeper had been purchased from McGuire-Cummings Mfg. Co. in 1902. The open cars were motorized only during the summer; in winter the snow sweeper used the motors from one.

In 1903 the track was extended on W. 5th St. to Lee St. During 1906 track was built on High Forest and Sanborn Streets from E. 3rd St. to Center St. Sidings were located on: W. 5th St. between Dacota and Olmstead Streets, E. 3rd St. between Carimona and Zumbro Streets, and Sanborn St. between Center and Lafayette Streets. An "East Side" loop line was begun, using two cars. A 42' x 87' extension to the carhouse was completed in 1906 to which the repair shop was moved. Two closed passenger motor cars, 18 and 20 (built by the Pullman Company in 1902), were acquired, and car 14, out of service for a year, was rebuilt with new vestibules in 1906 and re-numbered 19. Two new closed passenger motor cars, 21-22, were received from McGuire-Cummings Mfg. Co. in December, 1906. Exactly one year later, two identical cars, 23-24, were received from the same builder. Car 17 was rebuilt with new vestibules in late 1907. The 1907 U.S. Census listed 6.37 miles first main track, 0.15 miles sidings, and 6.52 miles total track; equipment comprised 9 closed passenger cars, 2 open passenger cars and 1 work car (11 single truck two-motor cars and 1 trailer).

During 1909 a branch line to the ball park, formerly the county fairgrounds, was built. Four open passenger trailers were purchased second-hand from Chicago for this service. They proved troublesome to operate, often derailing at the passing sidings. Car 20, damaged in a 1908 collision, was rebuilt only to be destroyed by fire in February, 1909; car 16 which was being rebuilt with new vestibules became second 20. Number 11, in poor condition, was retired in 1910. Short of cars, the company purchased two single truck, closed passenger motor cars, 25-26, from Chicago in late 1910. Then 17 was destroyed in a train collision on the Dacota St. crossing in May, 1911. Three new single truck, closed passenger motor cars, 27-29, were ordered from the John Stephenson Co. and received in the summer of 1911.

About 1912 the wooden trestle across Lake Winona was considered unsafe so the rails were removed and the ties planked over for use as a foot bridge.

The Wisconsin Railway Light & Power Co., organized in January, 1913, included the La Crosse City Ry. (Wisc.) and the Winona Ry. & Light Co. in its acquisitions during early 1913. Service improvements instituted that year required the addition of second track on Center St., and relocation of sidings on W. 5th and Sanborn Streets. As of January 1, 1916, the track shown on the map consisted of 6.198 miles first main track, .426 miles second main track, .281 miles sidings, .100 miles carhouse track, and 7.005 miles total track. Eight single truck closed cars were



Winona City Ry. 16 at the south end of the Lake Winona trestle on the "Lake" line about 1909. (Clarence J. Vincent collection)

retained, repainted yellow and re-numbered 1-8; in 1914 all had folding doors operated by the motorman installed on the vestibuled platforms. Four modern cars of steel construction were ordered (1012) from St. Louis Car Co. in October, 1913, and were received in March, 1914. Numbered 9-12, they measured 31' long and 8' 1" wide, were equipped with one St. Louis 46 truck and painted yellow.

Although proposed construction called for an electric interurban railway between Winona and La Crosse, no actual work was ever undertaken.

Four additional single truck, passenger motor cars of steel construction were ordered from St. Louis Car Co. (1092) during February, 1916. These cars differed slightly from the previous order, being 33'2" long, 8'8" wide, seated 32 persons, were equipped with one St. Louis 46 truck and air brakes. These cars, numbered 13 to 16, were placed in service during September, 1916.

New rail was placed during September, 1916, on 3rd St. from Johnson St. to Kansas St., at which time the track layout at the intersection of 3rd and Johnson Streets was revised. Rail was also replaced on W. 5th St. from Johnson St. to Mechanic St., the work being completed Oct. 4, 1916.

The two lines were then operated as follows:

The "Lake" line ran from 3rd and Center Streets, via Center St., Howard St., and Dacota St. to Dacota and Lake Streets. Two of the smaller and older cars provided base service, meeting at the siding on Howard St.

The "Main" line ran from W. 5th and Lee Streets, via W. 5th St., Johnson St., 3rd St., High Forest St., Sanborn St., and Center St. to 3rd and Center Streets, and returned via the same route. Five cars provided base service, meeting at the various sidings on the line; meets between "Lake" and "Main" line cars were made on the double track on Center St. The eight large steel cars were normally assigned to the "Main" line.

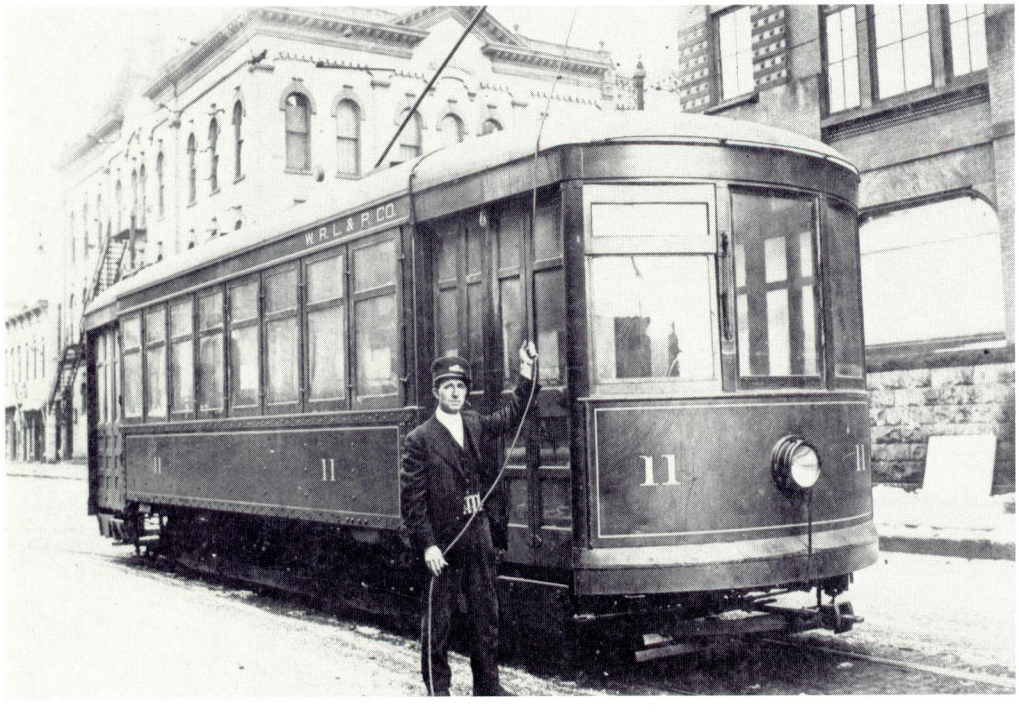
Base service on both lines was operated on a twelve minute headway, requiring a total of 7 cars. Extra cars were operated in rush hours according to the "double-header" method; an extra car following immediately behind a regular car.

Electricity was produced at the W. R. L. & P. Co. plant. Two generating units, type unspecified, supplied 575 volts D.C., with a total capacity of 400 KW.

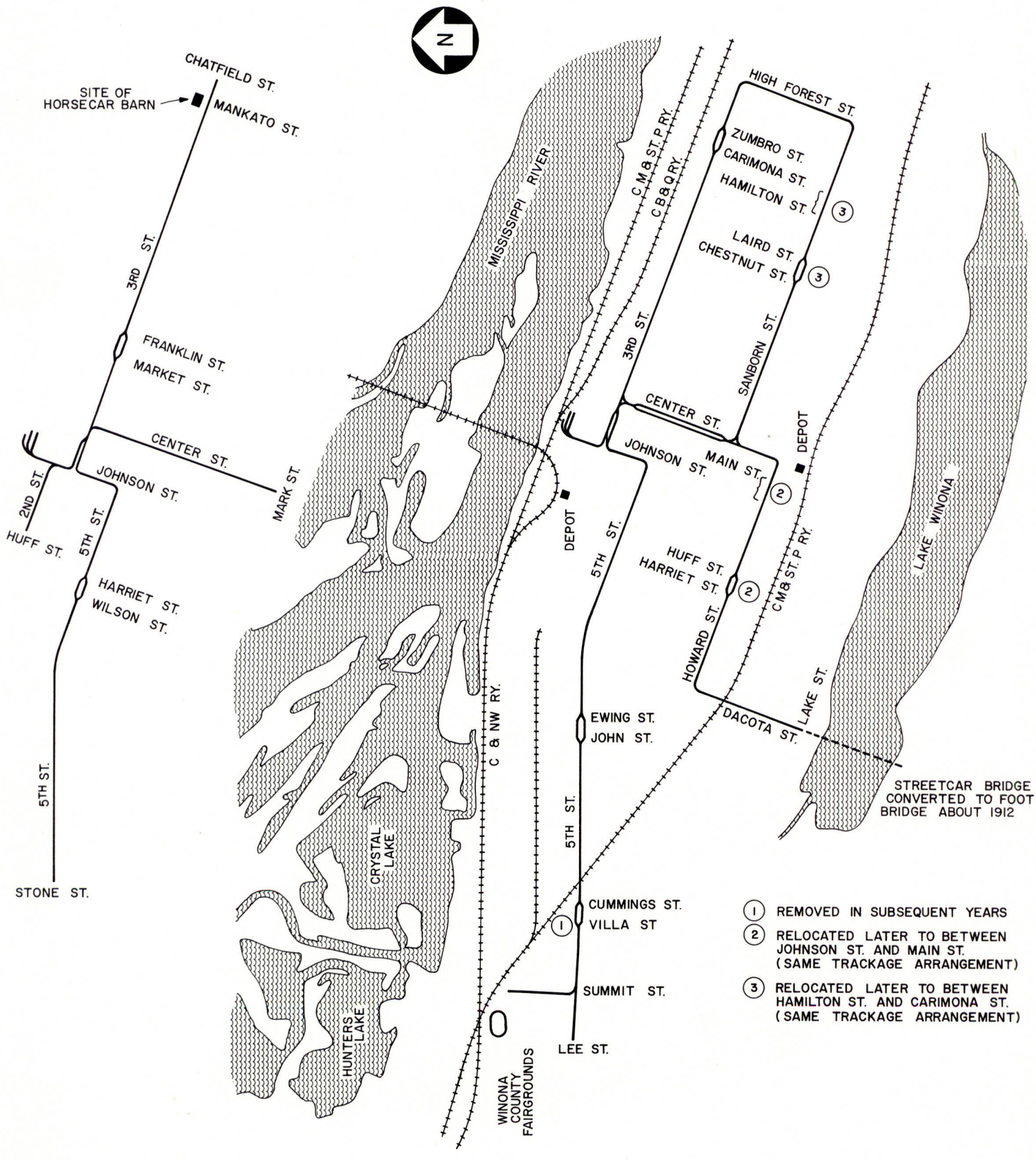
Additional new rail was placed during 1917-1918, so that the completed rail renewal program extended from E. 3rd and Chestnut Streets to W. 5th and Vila Streets. The siding on W. 5th St. from Vila to Cummings was probably removed at this time.

According to U.S. Census figures the total track mileage decreased from 7.52 miles in 1917 to 6.50 miles in 1922. On May 18, 1918, the Milwaukee Road "Fast Mail" train struck broadside and demolished car #3 on the Dacota St. crossing on the "Lake" line killing 2 persons and injuring 7. As the track at the crossing was in poor condition, it was decided to remove it and abandon the track south of that point effective June 1, 1918. A few years later car #12 spread the rails on the Dacota-Howard Streets curve; it took about a day to re-rail the car because of the sandy street so the curve and remaining track on Dacota St. was abandoned.

In June, 1918, the company announced a new color scheme was to be adopted, similar to that used in La Crosse. Side and end panels were to be dark green,



Wisconsin Ry. Light & Power Co. 11 on the "Lake" line at 3rd and Center Streets about 1914. The car is two-man operated and in its original paint scheme. (Clarence J. Vincent collection)


WINONA CITY RY.
1894
WISCONSIN RY.
LIGHT & POWER CO.
WINONA, MINN.
1-1916
N
CHATFIELD ST.
SITE OF HORSECAR BARN
MANKATO ST.
3RD ST.
FRANKLIN ST.
MARKET ST.
CENTER ST.
MARK ST.
2ND ST.
JOHNSON ST.
HUFF ST.
5TH ST.
HARRIET ST.
WILSON ST.
5TH ST.
STONE ST.
MISSISSIPPI RIVER
CRYSTAL LAKE
HUNTERS LAKE
C & NW RY.
C M & ST. P RY.
C B & Q RY.
3RD ST.
HIGH FOREST ST.
ZUMBRO ST.
CARIMONA ST.
HAMILTON ST.
LAIRD ST.
CHESTNUT ST.
SANBORN ST.
CENTER ST.
JOHNSON ST.
MAIN ST.
DEPOT
DEPOT
5TH ST.
HUFF ST.
HARRIET ST.
HOWARD ST.
C M & ST. P RY.
LAKE WINONA
LAKE ST.
DACOTA ST.
EWING ST.
JOHN ST.
5TH ST.
CUMMINGS ST.
VILLA ST
SUMMIT ST.
LEE ST.
WINONA COUNTY FAIRGROUNDS
STREETCAR BRIDGE CONVERTED TO FOOT BRIDGE ABOUT 1912
(1) REMOVED IN SUBSEQUENT YEARS
(2) RELOCATED LATER TO BETWEEN JOHNSON ST. AND MAIN ST. (SAME TRACKAGE ARRANGEMENT)
(3) RELOCATED LATER TO BETWEEN HAMILTON ST. AND CARIMONA ST. (SAME TRACKAGE ARRANGEMENT)

window sash and letterboard yellow, and the roofs flame red. Apparently this was applied only on steel cars 9-16 as old cars 1-8 retained the original yellow scheme until they were retired.

About 1921 La Crosse City Ry. single truck, closed passenger motor cars 35-37 were transferred to Winona for use on the "Lake" line. These cars had been built by St. Louis Car Co. in 1903, measured 33'2" long and 8'1" wide, seated 32 persons, and were equipped with one St. Louis 35 truck, two General Electric 67 motors, and hand brakes. 36 was retired about 1924-1925, the body being sold and converted into a garage. 35 was scrapped about 1926, while 37 was wrecked by a falling tree in a late 1920's sleet storm on the "Lake" line.

About 1925 La Crosse City Ry. cars 49-50 were transferred to Winona. These cars had been built by St. Louis Car Co. (order 915, February, 1912) in 1912 and were nearly identical to 9-12. The only differences were: (1) the entrance-exit doors were sliding rather than folding, and (2) a hooded destination sign was mounted on the front dash. About a year or two later both cars were remodeled; the sliding doors were replaced with folding doors and a window mounted destination sign replaced the dash mounted sign. After this remodeling, the cars were re-numbered 7 and 8.

In January, 1926, the corporate name was changed to the Mississippi Valley Public Service Co. A new paint scheme was devised and the cars repainted accordingly. The body was french grey, windows delphinium blue, and roof black; later a white "flare" was painted on the dashes.

During 1928 two single truck, double end, Birney cars were acquired from the Menominee and Marinette Light & Traction Co. (Wisconsin). Originally their 1-2, they were built by St. Louis Car Co. in 1924, measured 28'0½" long and 7'8" wide, weighed 16,600 pounds, and were equipped with one St. Louis truck and Westinghouse motors. They were repainted in the Winona color scheme and re-numbered 5-6. Apparently these cars were used on the "Lake" line.

About 1930 the entire fleet of cars, except 12, was repainted to a new color scheme: orange body, cream windows, red trim, red-orange or black roof, and white "flare" on the dashes. 12, in poorest condition, was retired, and the body became a 4-H Club house at Farmers Community Park between Stockton and Lewiston, Minn. About 1934 the white "flare" on the dashes was eliminated.

Transit directory information indicates the slow decline of the system during the 1920's and 1930's.

Equipment owned:

1923-1924: 15 passenger motor cars (all one-man) and 1 snow sweeper.

Eastbound car 13 waiting for the meet with westbound "Main" and "Lake" line cars at the 3rd and Center Streets intersection about 1918. (Clarence J. Vincent collection)

1925-1932: 11 passenger motor cars and 1 snow sweeper.

1933-1934: 6 passenger motor cars and 1 snow sweeper.

1935-1938: 4 passenger motor cars and 1 snow sweeper.

Track mileage:

1929: first track 5.920 miles, sidings 0.295 miles, and total track 6.215 miles.

1933: 5.6 miles total track.

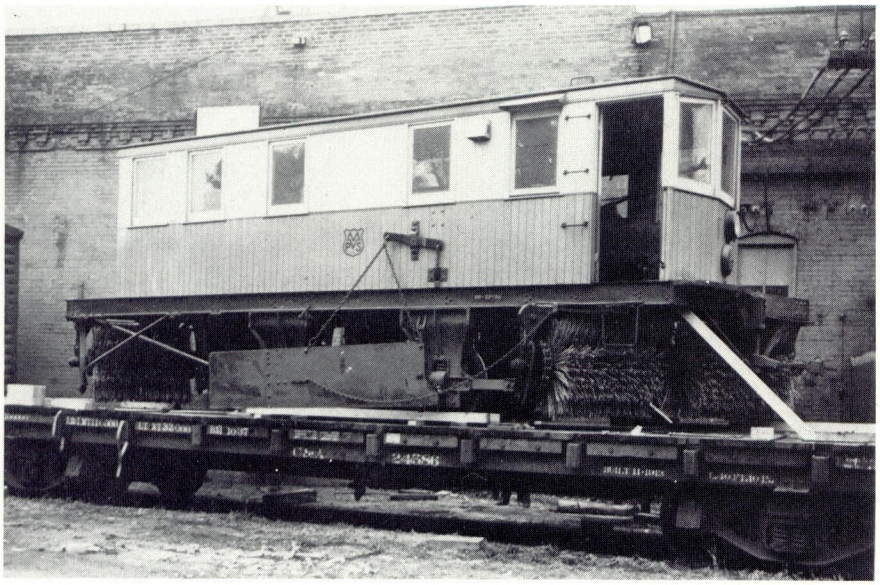
1934: 4.495 miles total track.

1935: first track 3.674 miles, second track 0.119 miles, sidings 0.226 miles, carhouse track 0.120 miles, and total track 4.139 miles.

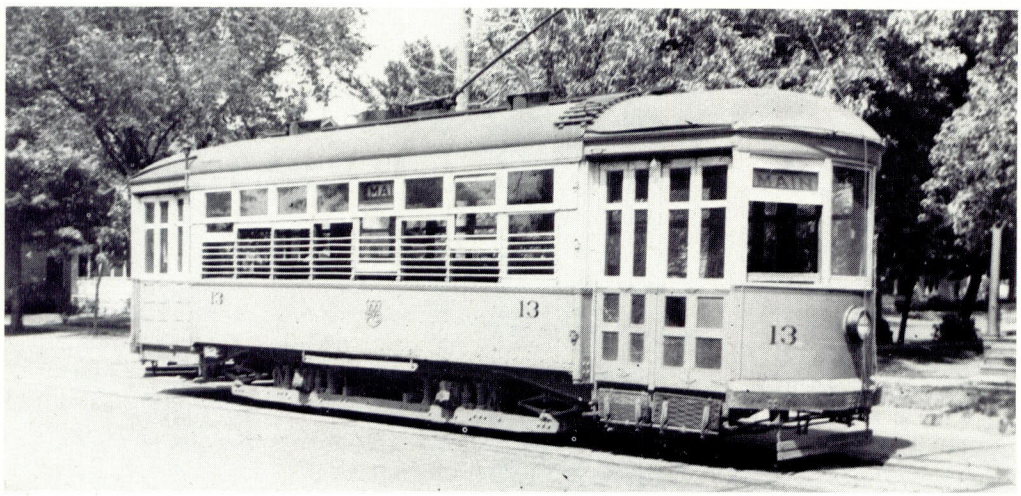
An experimental bus line was begun July 2, 1933, replacing streetcars on the "Lake" line. On October 20th of that year track of the "Lake" line was officially abandoned. Also on that date the "Main" line was shortened considerably. Track was abandoned on Center St. from 3rd St. to Sanborn St., on Sanborn St. from Center St. to Laird St., and on W. 5th St. from Lee St. to Hilbert St. (October 20th was the last full day of operation over these portions; the last cars pulled into the carhouse in the early morning hours of October 21st.) 12 minute service was then operated by streetcars on the "Main" line supplemented by one bus providing 20 minute service.

Birney cars 5 and 6 were scrapped later in 1933, followed by 16, then 7 and 8, leaving six cars by 1934: 9-11, and 13-15. By 1938 only four cars remained: 9-11, and 14.

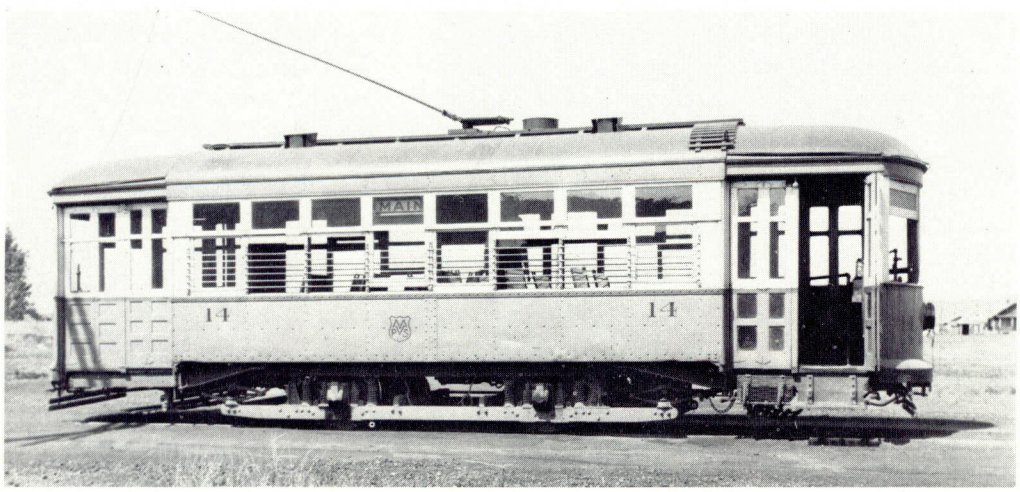
Friday, July 21st, 1938, was the last full day of streetcar operation on the "Main" line. The very last run was made by car 10, with Joseph McCormick as motorman, pulling into the carhouse from the east end of the line in the early morning hours of July 22nd. The four remaining car bodies were sold; however the snow sweeper was transferred complete to La Crosse.



The Snow Sweeper loaded for shipment from Winona to LaCrosse after the end of operations in 1938. (Clarence J. Vincent collection)



Car 13 of the "Main" line westbound on E. 3rd St., 1933. (Frank Butts)



Car 14 at West 5th and Lee Streets, the west end of the "Main" line, about 1933. (Frank Butts)

4. MANKATO ELECTRIC TRACTION CO.

Mankato, Minn.

This city with a 1917 population of 10,365 was an early railroad and trade center. The Mankato St. Ry. was organized in June, 1886, by W.M. Farr (President & Manager), J.C. Noe (Secretary & Treasurer), J.A. Willard, Stephen Lamm, G.F. Piper, G.H. Clark and J.R. Jones. Offices were established at 313 Front St. and construction of a horsecar line on Front St. was completed on July 23, 1886. According to old records the first three days of operation provided 966, 1033 and 1455 fares, respectively. Subsequent extensions were made as follows: (1) to the C. St. P. M. & O. Ry. depot at 4th and Washington St.; and (2) up Center St. and Byron St. (Summer, 1887).

After two or three years the second extension was removed and the tracks relaid on another extension to Sibley Park at the Blue Earth River bridge.

The 1890 U.S. Census indicated that 3.50 miles of 3'6" gauge track was owned together with 5 horse cars and 16 horses. The 1891 Street Railway Journal reported the same mileage but listed 6 horse cars, utilization of 27 lb. steel rail, and offices located at 121 Hickory St. However Mankato was proving to be too small a city to support a street railway; patronage was insufficient to pay operating expenses. Some effort was made to convert the line to electric operation but this also failed. An 1892 directory lists 3.5 miles of track, 2 horse cars and 3 electric motor cars built by Brownell Car Co. The company was forced into bankruptcy and complete abandonment occurred in October, 1895.

The Mankato Electric Traction Co. was incorporated in August, 1899, although another source reports incorporation during 1907 in the state of West Virginia. Officers were W.L. Hixon (President), Mr. Ewing (Vice President), W.D. Willard (Secretary-Treasurer), and H.E. Hance (General Manager). Construction began in 1907 on two single track electric lines: (1) on N. Broad St. from Mabel St. at Tourtellotte Park to Vine St., on Vine to Front St., and on Front St. and Park Lane to Sibley Park, and (2) on Main St. from Front St. to 5th St., on 5th to Warren St., on Warren to 4th St., on 4th to Clark St., on Clark to Center St., on Center to Byron St., on Byron to Pleasant St., and on Pleasant to Willard St. This was called the "Hill Line".

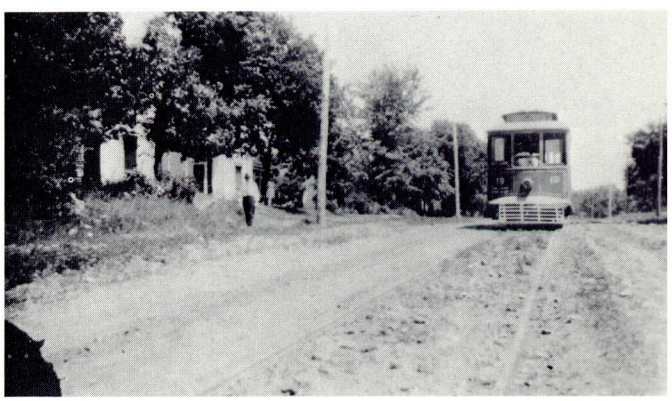
There was a short length of double track on Front St. from Main St. to Cherry St. A passing siding was located on 5th St. in front of the teachers' college. Offices and carhouse were located at 1103 N. Broad St. Both lines were opened for service on May 1, 1908.

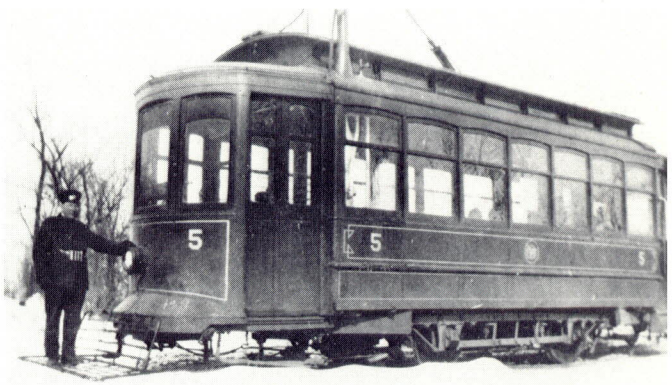
Equipment orders as listed in the Electric Railway Journal were: three single truck, double end, closed passenger cars from Danville Car Co. (Danville, Ill.) in 1907; four single truck, double end, closed passenger cars (30'8" long, seating 30) from McGuire-Cummings Mfg. Co. in 1908; and one single truck snow sweeper from McGuire-Cummings Mfg. Co., also in 1908.

Above right: Car 19 operating on the "Hill" line. (Frank Butts)

Below right: Car 5 at the west end of the "Hill" line. (Frank Butts)

Below left: Looking south on Front St. from Main St. prior to 1911. (James Foster collection)





Additional equipment was purchased second-hand from the Twin City Rapid Transit Co.: Ex TCRT 414, an 18' single truck, closed passenger car built by LaClede Car Co. in 1891, acquired in 1910; Ex TCRT 526, an 18' single truck, closed passenger car built by Northern Car Co. in 1891, acquired in 1911 (This car was being used by TCRT as a wrecker at the time it was purchased by MET Co.); Ex TCRT 587, a 22' single truck, closed passenger car built by J.M. Jones' Sons Car Co. in 1888, lengthened by TCRT in 1892, acquired in 1911.

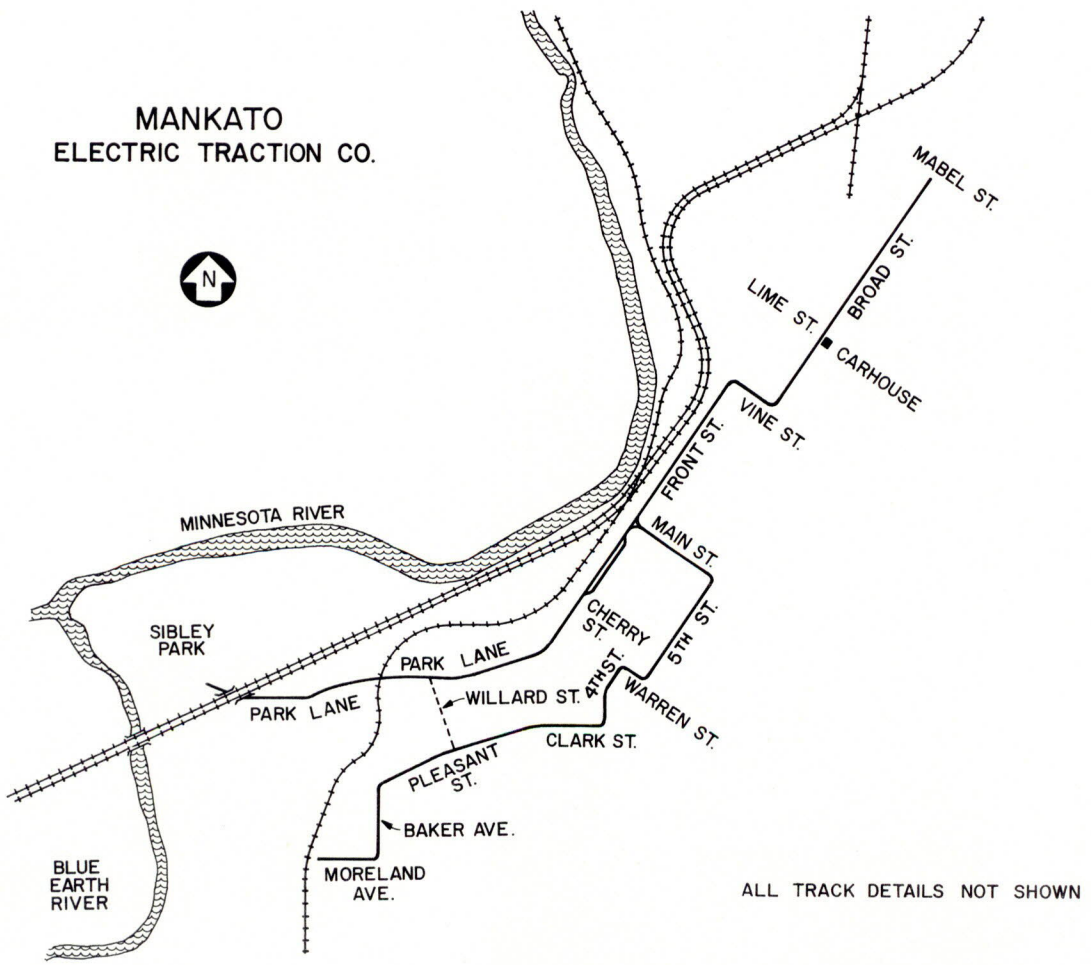
In 1912 Walter Cummings, of the McGuire-Cummings Mfg. Co., purchased most of the capital stock. During 1913 he sold his interest to the Mississippi Valley Electric Co., Iowa City, Iowa, of which J.O. Schulze was President. In 1914 Adolph Meuller was hired as General Manager and Superintendent and remained as such until the end of streetcar operations.

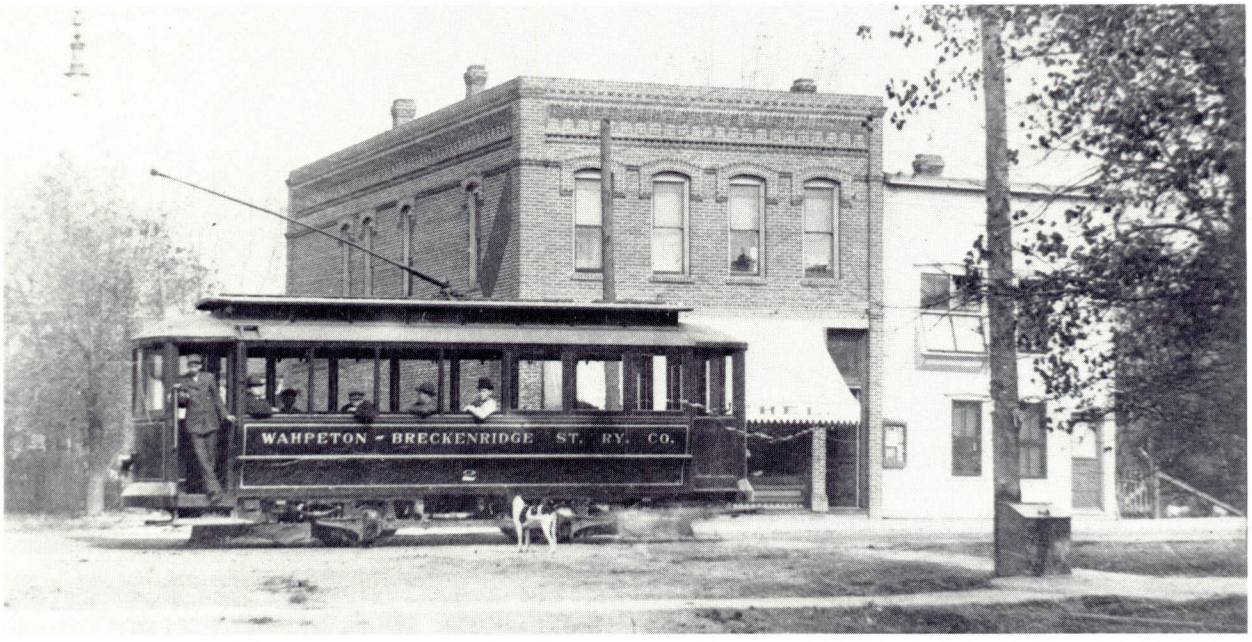
During 1913, the "Hill Line" was extended on Willard St. from Pleasant St. to Park Lane. During 1919 (one source says about 1917) this trackage was abandoned and a new extension built on Pleasant St. to Baker St., on Baker to Moreland Ave., and on Moreland Ave. to Hazel St. near the Milwaukee Road railroad tracks.

About 1912-1914 the company was reported to own 5 passenger motor cars and 7 or 8 open passenger trailers. Sometimes 3 or 4 open trailers were coupled to one motor car on circus or fair days to accommodate the overwhelming business. It was reported that on one circus day approximately 11,000 passengers were transported. The trailers were hard to handle and caused so much trouble that their use was discontinued in 1914. Cars had been operated with two man crews but for economy reasons they were comverted to one-man operation in 1915. As of 1916 the company was listed as owning 5.0 or 5.3 miles of track and 10 passenger cars (8 motor cars and 2 other cars). A single truck, closed passenger motor car, No. 19, was transferred from Iowa City to Mankato at an unknown date.

The 1923 track mileage was reported as 4.73 miles of main track, plus 0.33 miles of siding, for a total of 5.06 miles of track. This figure held constant until the abandonment of operations. Power was purchased from the Consumers Power Co. (later Northern States Power Co.); one motor-generator set of 200 KW capacity produced the 575 volts D.C. utilized. Equipment directories of this same period listed 6 passenger motor cars (of which 3 were active one-man cars, 2 were extra cars, and 1 was obsolete), 1 snow plow (sweeper) and 1 service trailer.

During 1922 the company began operating at a loss. Its financial condition steadily worsened until it entered receivership in 1929. H. Negus of Iowa City was Receiver and General Manager. Abandonment of all streetcar operations took place on March 8, 1930.





Car 2; note the pilots attached to the truck frame which also served as snow plow blades in winter. (Frank Butts collection)

5. WAHPETON-BRECKENRIDGE STREET RAILWAY

Wahpeton, N.D. – Breckenridge, Minn.

These two little cities were important junction and division points on the Great Northern and Northern Pacific railways. They are separated by the Bois de Sioux River which is also the dividing line between Minnesota and North Dakota in this area. One of the shortest interstate streetcar lines in the United States was constructed to connect these two cities. The 1918 population statistics were: Breckenridge 1,840 persons, and Wahpeton 2,467 persons.

The Wahpeton-Breckenridge St. Ry. was incorporated in September, 1909, and proceeded to sell capital stock to the citizens of both cities with the goal of raising $25,000. A single track line was constructed and opened for service on August 30, 1910. A total of 1.144 miles of track was owned of which 0.43 miles was located in North Dakota. (The 1922 U.S. Census noted that 0.46 miles was in N.D.)

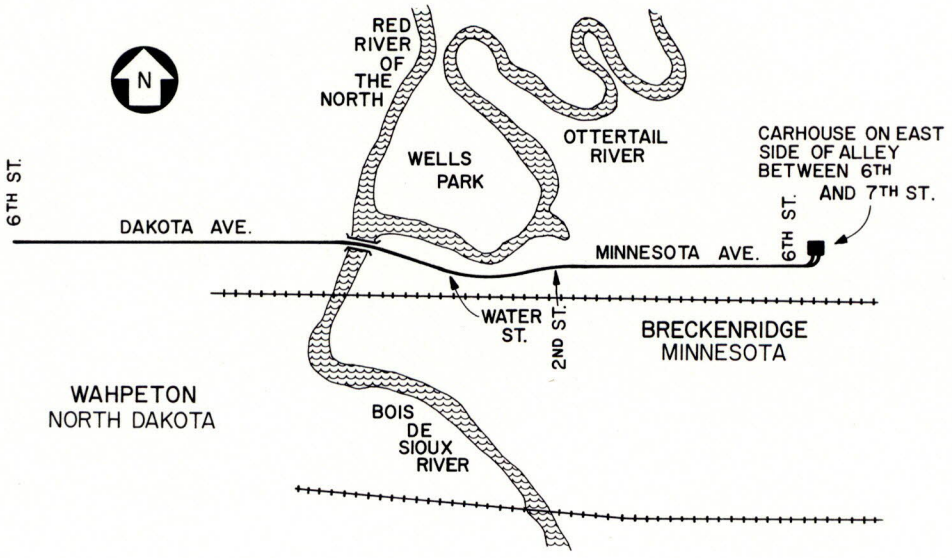
Power was purchased from the Ottertail Power Co. at 2200 volts A.C. and converted to 550 volts D.C. by two General Electric rotary converters with a total capacity of 150 KW. The carhouse, with a capacity of two cars, was located at the east end of the line in Breckenridge. Two single truck, 30 foot, closed passenger cars (1 and 2) were built for the company in 1910 by the McGuire-Cummings Manufacturing Co. of Paris, Illinois.

Officers of the company for many years were: Matt Braun (President), Frank Miksche (Vice President), E.H. Elwin (Secretary) and R.T. Barber (Treasurer); Math Schmitt was General Manager and Purchasing Agent with Henry Achter as Master Mechanic.

One car was used in service each day so the two cars were alternated. Running time was approximately 5 minutes one way with daily service provided over an eighteen hour period. Because of its interstate nature, the company was subject to state and federal regulation so each 5 cent fare was strictly accounted for under as much bureaucratic "red tape" as the largest trolley corporation.

In early years operations were profitable enough to allow payment of a reasonable dividend to the stockholders. Automobile competition, rapidly increasing electricity rates, and street paving costs soon created financial difficulties for the little company. In 1921 it was necessary to raise an additional $25,000 for street paving and track rebuilding which pushed the company into bankruptcy in 1922. Operations finally came to an end on March 31, 1925, leaving 125 disillusioned stockholders.

WAHPETON - BRECKENRIDGE ST. RY. CO.



Stillwater St. Ry. cars 1 and 6 meet at the wye on 3rd and Chestnut Streets during 1893. (W. C. Fisher; John Runk collection from Joe Hutchinson)

6. STILLWATER ST. RY.

Stillwater, Minn.

Stillwater was one of the earliest settlements in the state. It was the center of vast logging operations on the St. Croix River and during this period had a population in excess of 10,000 persons. The Stillwater St. Ry. was incorporated in May, 1886, by several local businessmen but no construction was undertaken. A new company with the same name was organized in April, 1888, headed by Dr. E.D. Allen, Davenport, Iowa, as president with W.H. Hewitt as superintendent. During 1889 construction of two lines of electric street railway was begun and completed. Electrical equipment designed by Frank Sprague was utilized. A trial run was made on June 25, 1889, with regular operation beginning June 27th. This was the first electric railway to operate successfully in the State of Minnesota.

According to a local historian, the two lines operated ran on the following streets:

1. from the foot of Chestnut St., at the Union Depot, on Chestnut St. to 3rd St., south on 3rd St. to Burlington St., and east on Burlington to 4th Ave. So. (Oak St.). This was referred to as the South Stillwater line although the community of that name was situated several miles south. Apparently a line to there was planned for a reference was made to the effect that passengers for South Stillwater would change cars at 4th and Burlington to another line running to that community.
2. on N. Main St. from the old state prison south to Chestnut St., on Chestnut to 3rd St., north on 3rd St. to Laurel St., west on Laurel to 5th St., and north on 5th St. to Wilkin St. Tracks on this line were laid on one side of the street instead of in the center.

The power station and carhouse were located on N. Main St. between Mulberry and Linden St., about where the Consolidated Lumber Co. later located its retail lumber yard. Power station equipment consisted of one 125 h.p. Meyer fixed cut-off engine and two 60 h.p. generators. Six 16' closed passenger cars (22' over-all length), built in St. Louis, Mo., equipped for double end operation, were owned; five cars were needed to provide service on the two lines operated. (The cars had longitudinal seats with space allowed on one side for a small stove.)

The 1890 U.S. Census reported: first main track 5.25 miles, sidings 0.25 miles, and total track 5.50 miles; five motor cars owned; an average of four cars were operated at one time; steepest grade, 9.75% (300' long); and radius of sharpest curve: 40'.

The 1891 Street Railway Journal directory listed the following information: 5 miles of 4'8½" gauge track (30 lb. T and tram rail); 6 motor cars owned equipped with Edison motors; officers were W.L. Allen (President), T.O. Swiney (Vice President), E.D. Allen (Secretary-Treasurer), and J.S. Barrett (Superintendent); and offices were located at Davenport, Iowa.

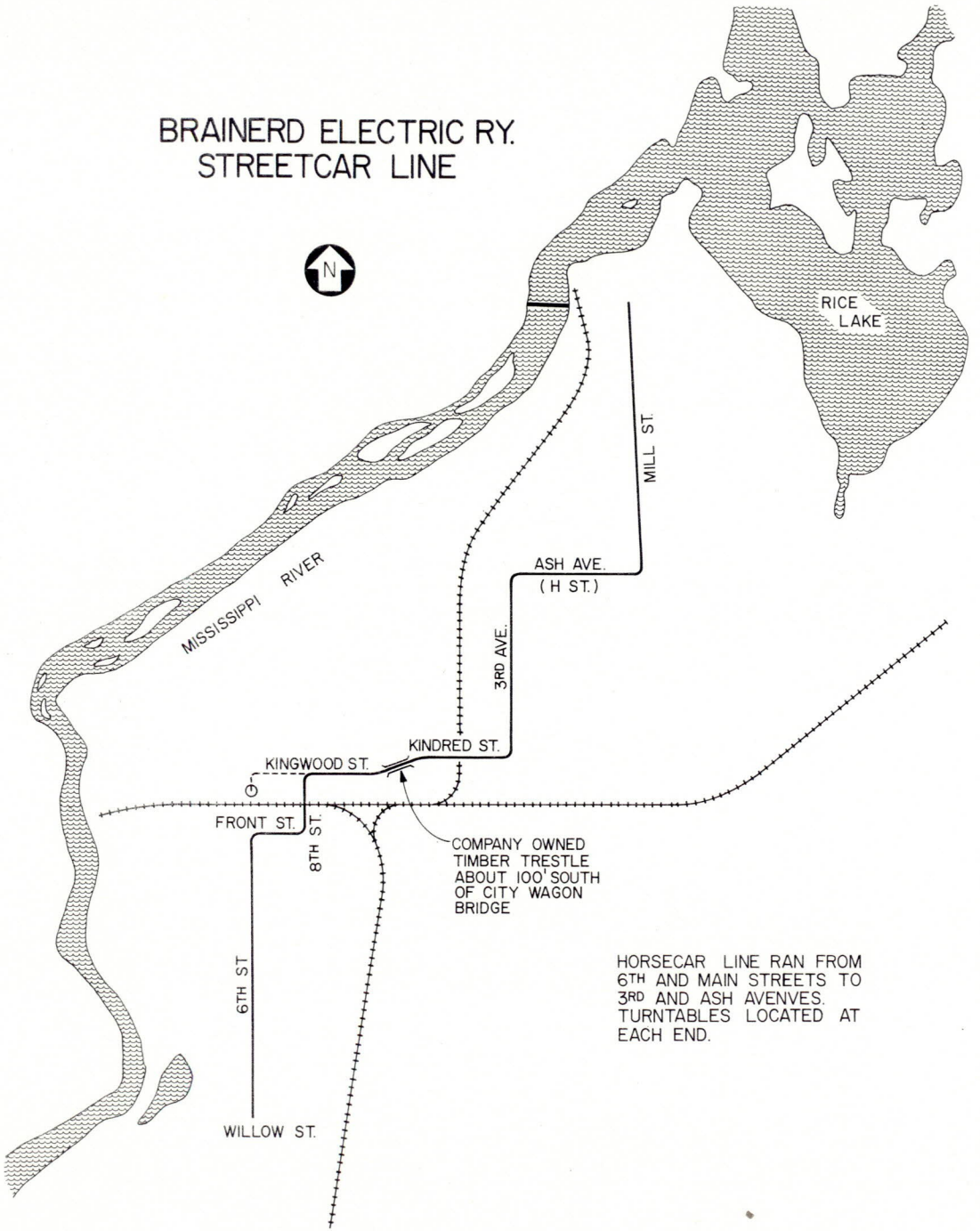
During 1891 the following events were recorded in local trade journals: many sharp curves were eliminated on the South Stillwater line; the Main St. line was extended to the State Prison; new cars with 50 h.p. motors were purchased to improve service on the long, steep grades; and Burton electric heaters were experimentally installed on car 7 with satisfactory results.

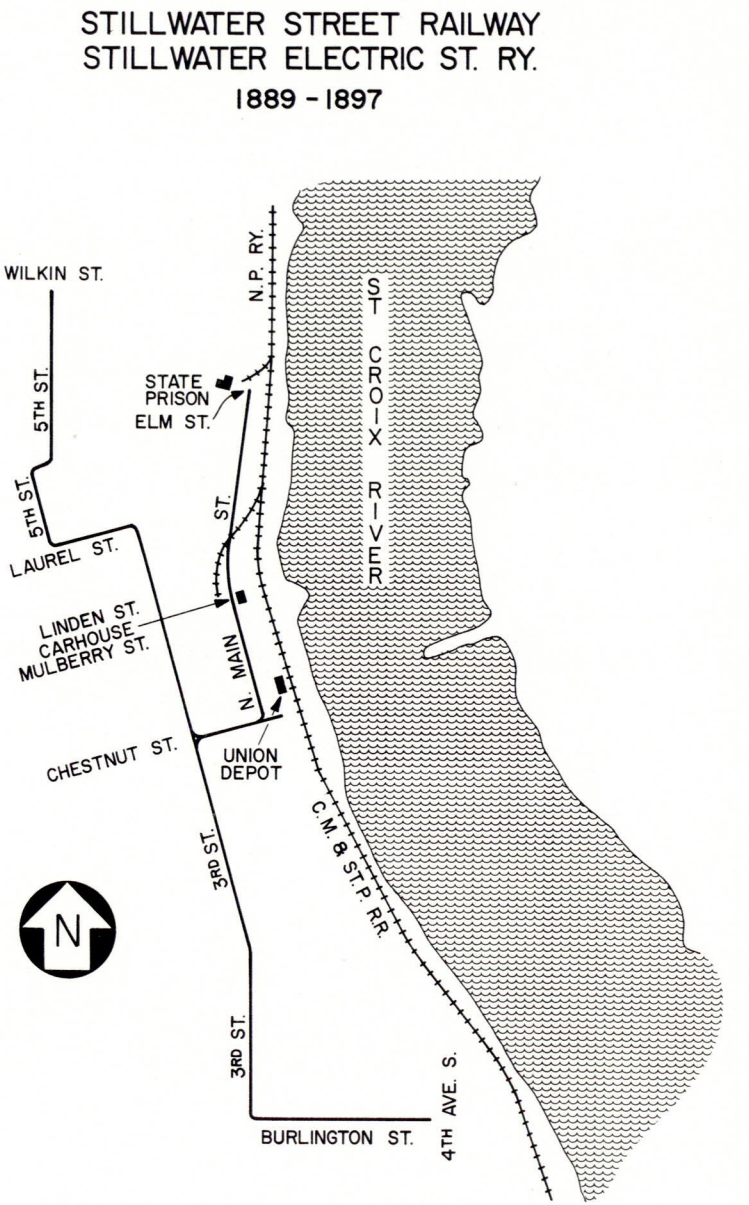
The local historian wrote that patronage was not too good at first; horse and buggy competition was extensive and the 5 cents fare was too expensive for some people. However a good business was done on Sundays and holidays when there were baseball games at the field where the Stillwater Clinic is now located. The company managed to remain solvent until Dr. Allen began using funds to bolster his financially troubled Davenport line. W.H. Hewitt was appointed receiver of the company.

By August, 1893, the company was in its second receivership. Financial problems increased until there were insufficient funds to pay the employees. In the meantime payment of interest on the mortgage bonds had been defaulted. On May 31, 1894, the property was sold by the sheriff under foreclosure proceedings. Allen Curtis, trustee for the Boston bondholders, purchased the property for $69,120. The Stillwater Electric St. Ry. was incorporated in July, 1894, and took over the property.

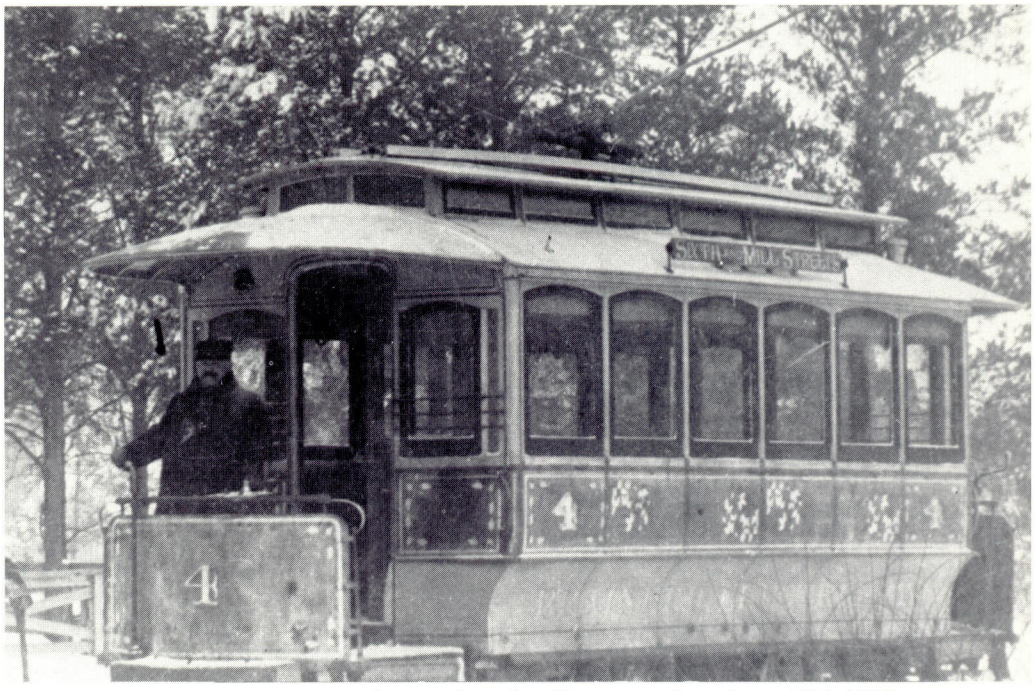
On March 5, 1897, the property was sold for $4,700 to Fred Flint of Stillwater. He subsequently offered it to the city for $5,000 but soon found that the scrap value of the property was considerably higher. It is not recorded when the last operations were conducted, but sometime during 1897 the entire property was sold for scrap. The power station and carhouse building remained standing for many years.

When the Twin City Rapid Transit Co. began building its interurban line to Stillwater, it obtained a franchise providing for the operation of a local street railway system in Stillwater. This system was built during 1899 and a whole new streetcar era began in Stillwater.


BRAINERD ELECTRIC RY.
STREETCAR LINE
N
RICE LAKE
MILL ST.
ASH AVE.
(H ST.)
3RD AVE.
MISSISSIPPI RIVER
KINDRED ST.
KINGWOOD ST.
FRONT ST.
8TH ST.
6TH ST
WILLOW ST.
COMPANY OWNED TIMBER TRESTLE ABOUT 100' SOUTH OF CITY WAGON BRIDGE
HORSECAR LINE RAN FROM 6TH AND MAIN STREETS TO 3RD AND ASH AVENVES. TURNTABLES LOCATED AT EACH END.


STILLWATER STREET RAILWAY
STILLWATER ELECTRIC ST. RY.
1889 - 1897
WILKIN ST.
5TH ST.
5TH ST.
LAUREL ST.
N.P. RY.
ST CROIX RIVER
STATE PRISON
ELM ST.
ST.
LINDEN ST.
CARHOUSE
MULBERRY ST.
N. MAIN
CHESTNUT ST.
UNION DEPOT
C.M. & ST.P. R.R.
3RD ST.
3RD ST.
BURLINGTON ST.
4TH AVE. S.
N

7. BRAINERD ELECTRIC STREET RAILWAY



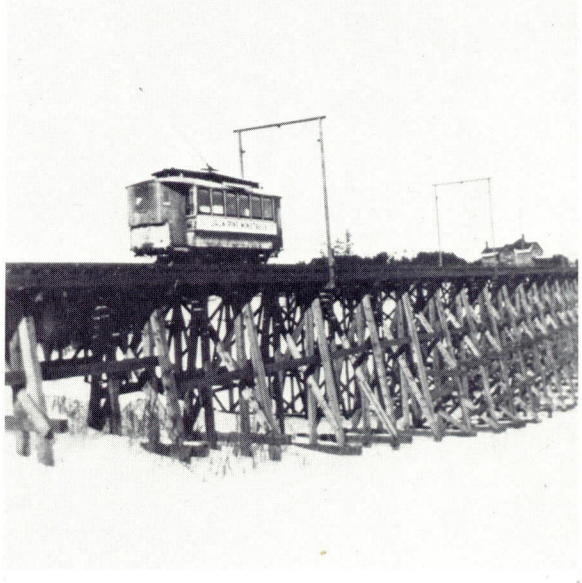
Car 4 on the "Sixth and Mill Streets" line about 1893-1894. (Frank Butts collection)

Brainerd, Minn.

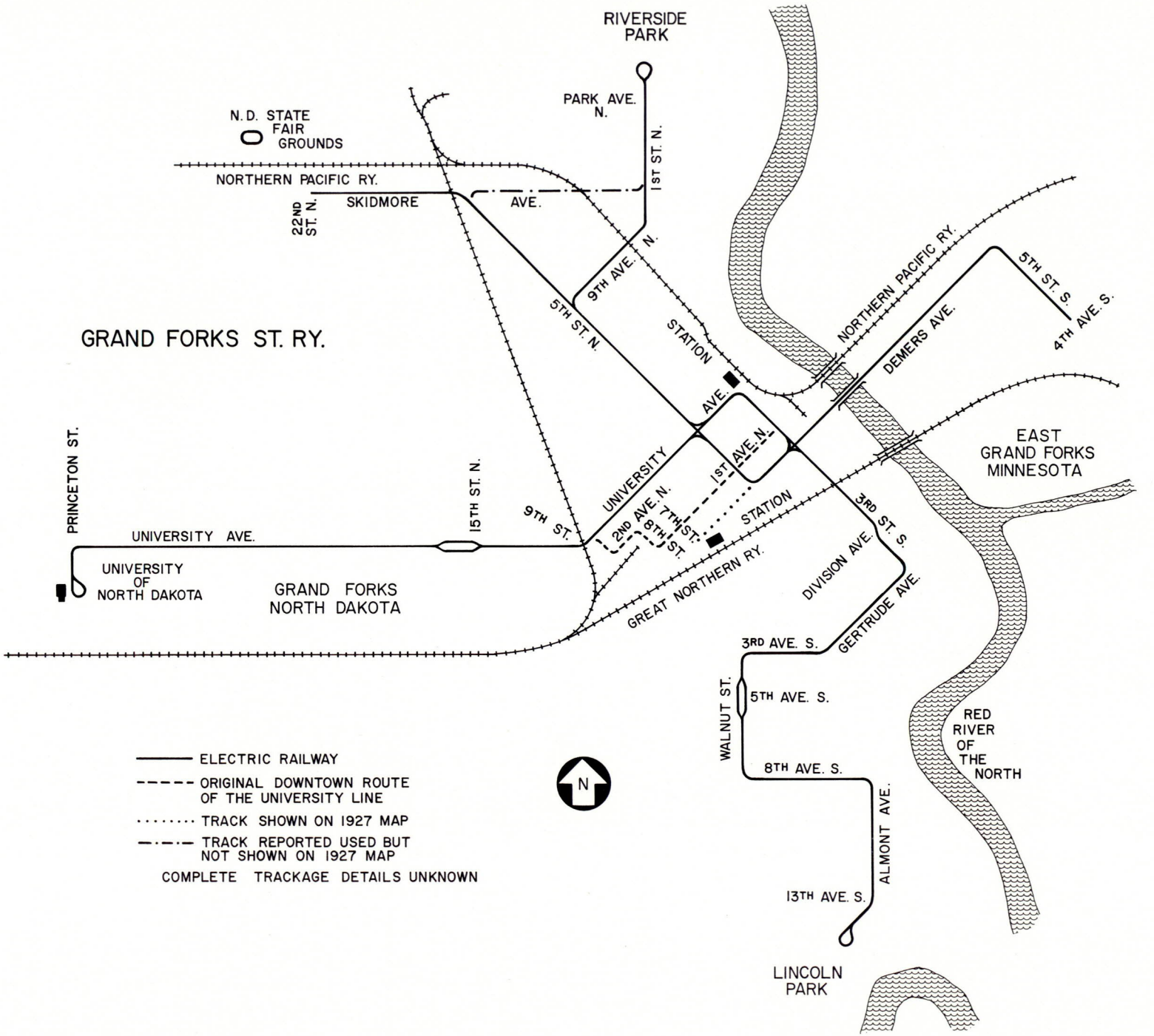
Brainerd was an early lumbering and railroad center with a 1900 population of about 7,500 persons. A franchise was granted in 1885 to Charles F. Kindred for the construction and operation of a horsecar line. The Brainerd St. Ry. was incorporated in July, 1886, by Kindred, C.E. Taylor and W.J. Dain. The completed line was about 1½ miles long and opened for operation in the fall of 1887. The horsecar barns were located at 3rd Ave. and Ash Ave. Financial problems were encountered immediately and in 1888 the contractors who built the line filed mechanic's liens against the property. Becoming increasingly discouraged Charles Kindred finally left Brainerd in early 1889 and the company ceased operations.

In October, 1892, Charles N. Parker, a prominent local operator of iron and brass foundries, requested the city council to investigate selling him the city's electric power plant. The eventual result was that he received a 30 year franchise for the operation of a street railway. The franchise provided that the line was to be placed in operation by July 1, 1893, and was to contruct its own power plant. The Brainerd Electric (Street) Railway was incorporated in March, 1893. Construction was begun promptly and the completed line placed in operation later in 1893. The carhouse and power plant were located on the west side of the Mill St. end of the line. The Brainerd Lumber Co. sawmills were located directly opposite on the east side. The line was subsequently extended a short distance north on Mill St. as an 1895 newspaper article mentioned that the line was now operating "full length". Total length of the line was 3½ miles. Four cars (1 through 4) were owned which were of the single-truck closed type with open platforms; these were later enclosed due to passage of the so-called "vestibule bill" by the state legislature.

A severe windstorm destroyed both the city-owned and company-owned trestles over the ravine on June 2, 1898. Difficulties and confusion were encountered in proposing the erection of a new bridge by the city on which streetcar tracks could be laid. The street railway company stated that its operations were unprofitable and refused to construct its own bridge. The city eventually awarded a contract for bridge construction that did not include tracks and was not capable of supporting streetcars. Mr. Parker decided to quit the street railway business. The track was abandoned but left in the streets, while the four cars were loaded on railroad flat cars and shipped to Duluth for scrapping.



A car on the company-owned trestle which was subsequently destroyed in a windstorm. Note the ungainly home-built vestibules. (Frank Butts collection)


GRAND FORKS ST. RY.
RIVERSIDE PARK
PARK AVE. N.
1ST ST. N.
N.D. STATE FAIR GROUNDS
NORTHERN PACIFIC RY.
22ND ST. N.
SKIDMORE
AVE.
9TH AVE. N.
5TH ST. N.
STATION
AVE.
NORTHERN PACIFIC RY.
DEMERS AVE.
5TH ST. S.
4TH AVE. S.
EAST GRAND FORKS MINNESOTA
PRINCETON ST.
UNIVERSITY AVE.
15TH ST. N.
9TH ST.
UNIVERSITY
1ST AVE. N.
2ND AVE. N.
7TH ST.
8TH ST.
STATION
3RD ST. S.
UNIVERSITY OF NORTH DAKOTA
GRAND FORKS NORTH DAKOTA
GREAT NORTHERN RY.
DIVISION AVE.
GERTRUDE AVE.
3RD AVE. S.
WALNUT ST.
5TH AVE. S.
RED RIVER OF THE NORTH
8TH AVE. S.
ALMONT AVE.
13TH AVE. S.
LINCOLN PARK
ELECTRIC RAILWAY
ORIGINAL DOWNTOWN ROUTE OF THE UNIVERSITY LINE
TRACK SHOWN ON 1927 MAP
TRACK REPORTED USED BUT NOT SHOWN ON 1927 MAP
COMPLETE TRACKAGE DETAILS UNKNOWN
N

Above: Car 4 operating on the "East Side" line. (Wayne C. Olsen collection)

8. GRAND FORKS STREET RAILWAY

Grand Forks, N.D. – East Grand Forks, Minn.

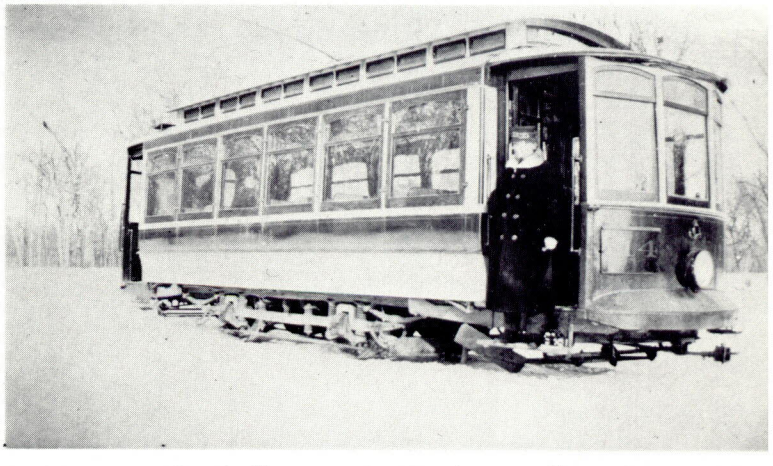
East Grand Forks is a junction point on both the Great Northern and Northern Pacific Railways. It was served by a branch of the street railway system in Grand Forks, N.D., just across the Red River of the North, the boundary between Minnesota and North Dakota. Operation in East Grand Forks was rather short-lived but since Grand Forks St. Ry. had such an interesting history the entire operation has been included.

The Grand Forks St. Ry. was incorporated in November, 1892, but no records of any construction at this early date have been located. Presumably this was one of the companies projected but never able to raise sufficient money to begin construction.

The University of North Dakota was located about two miles from downtown Grand Forks with most of the distance being bleak, unbroken prairie. Transportation of the students and faculty was difficult. President Webster Merrifield of the University was active in promoting organization of the Grand Forks Transit Co. in 1904 with the objective of providing service between the campus and downtown. The incorporaters were: E.J. Lander, C.F. Whitcomb, O.N. Hatcher, O.S. Hanson, D.R. Beecher (Treasurer), O.A. Webster (Secretary), J.A. Dinnie, J.D. Bacon (Vice President), A.I. Hunter, W.H. Kelsey and W.J. Murphy. R.B. Griffith was President of the company.

An argument ensued as to whether gasoline motor cars or electric streetcars should be utilized. Electricity won when it was determined that installation of an additional

Center: Car 104 in downtown Grand Forks on the "Riverside Park" line. (Joe Hutchinson collection)



Car 114 at an unidentified location. (Joe Hutchinson collection)

dynamo at the University's power house would provide sufficient generating capacity. Construction began July 13, 1904, at the University end of the line. The route was from 3rd St. and Alpha Ave. (now 1st Ave. N.), west on Alpha to 8th St., north on 8th to International Ave. (now 2nd Ave. N.), west to 9th St., north on 9th to University Ave., and west on Unviersity to the campus ending at the approximate location of the President's house. The line was opened for operation on November 20, 1904. Fare was 5 cents one way. A small second-hand, double-end passenger motor car was used; later a trailer was added. This equipment came from the Duluth St. Ry.: Ex DSR 19, a single truck, closed passenger motor car, built by LaClede Car Co. in 1890 for Duluth St. Ry.; Ex DSR 102, a single truck, closed passenger motor car built by John Stephenson Co. in 1889 for the Superior Rapid Transit Ry. (Motors and controls had been removed by DSR previous to the sale of the car.)

One snow plow was ordered from the J.G. Brill Co. on their order #15338 dated July 7, 1906.

Operations were shut down completely during the summer months when the students were on vacation. The 1907 U.S. Census provides the basic information about the company. Total track 2.25 miles (no sidings); 1.25 miles was located within the city limits and utilized span wire overhead construction while the 1.00 mile outside the city limits utilized side bracket overhead construction. One railroad was crossed at grade. Three closed passenger cars (two motor cars and one trailer) and one snow plow (motorized) were owned.

The third passenger car was a single truck, closed (semi-convertible) motor car (#3) built by American Car Co. on their order #635 and delivered in March, 1906.

Several prominent citizens felt the need for an enlarged street railway system in Grand Forks. They organized the Grand Forks St. Ry. in the summer of 1907, obtained a franchise from the city, and acquired the Grand Forks Transit Co. in 1908. The principal stockholders included Paul Griffith, E.F. Chandler (Dean of the College of Engineering of the University), R.D. Campbell, M.D., and E.J. Lander. The expansion program was begun October 3, 1908, when the first new track was laid on 3rd St.

The University line was rebuilt and the downtown trackage relocated. (Please refer to the map.) The trackage west of 20th St. N. was located on a center right-of-way with one-way street traffic on either side. The line turned south onto private right-of-way at Princeton St. into the University campus about 400 ft. ending in a sharp radius loop in front of Chandler Hall, the mechanical engineering building, near the banks of the English Coulee. Operation downtown was counter-clockwise around the 5th St. — DeMers Ave. — 3rd St. — University Ave. loop.

The Lincoln Park line was built during 1908 and 1909. During 1911 two additional lines were completed: (1) from the Great Northern Ry. depot to East Grand Forks, Minn.; and (2) from downtown north to the Fairgrounds. No specific mention was made of the Riverside Park line which branched off this line. One source estimates that it was built around 1912 to 1914. In later years the portion to the Fairgrounds itself was used only during Fair Week.

Offices were located at 217 So. 3rd St. while the carhouse and shops were built at 1008 No. 5th St. Power was purchased from the Red River Power Co. which had installed one General Electric 225 KW 550 volt D.C. generator direct-connected to a 350 h.p. Ball Corliss engine supplied with steam from one Stirling 463 h.p. boiler.

Officials of the company for most of its existence were: T.J. Smith (President), E.P. Chandler (Vice President), G.C. Gowran (Secretary), O.S. Hanson (Treasurer) and O.E. Odegard (Auditor). General Managers during the years of streetcar operation were: Thomas Campbell (1909-1910), A.E. Morrison (1910-1911), Thomas Roycroft (1911-1921), W.L. Hawkes (1921-1927), and O.E. Odegard (1927-1934).

Equipment orders reported in the Electric Railway Journal included: one single truck, snow sweeper from McGuire-Cummings Mfg. Co. in 1909; three (#4-#6) single truck, semi-convertible passenger motor cars (20'8" long) from American Car Co. (order #821 delivered July, 1909; and one (#102) single truck, semi-convertible passenger motor car (20'8" long) from American Car Co. (order #912) delivered November, 1911.

According to one source, service up to 1920 was provided by seven cars. Four single truck, double end, deck roof, semi-convertible passenger motor cars with hand brakes numbered 102, 104, 106 and 108. They were painted dark green with brown roof. One single truck, double end, deck roof, passenger motor car numbered 110 was generally similar to the previous four cars with the exception that it was longer, windows were narrower, and some other details varied. Two double truck passenger motor cars numbered 112 and 114, apparently purchased second-hand and reportedly similar in appearance to older Winnipeg streetcars. (Note however, that the photograph identified as Grand Forks car 114 shows a single truck car.) Four open passenger trailers numbered 2, 4, 6 and 8 used mostly in Fairgrounds service. These four cars were acquired June, 1909, from the Twin City Rapid Transit Co. Ex TCRT 1610, 1613, 1626, and 1630 were open motor cars built by LaClede Car Co. in 1893 from which motors and controllers had been removed before sale.

Work equipment consisted of the original snow plow, the snow sweeper, and a single truck flat trailer used for hauling rails and ties.

About 1919 a system of through route combinations of the various lines was effected. Service on the University-Lincoln Park line was on a 15 minute headway

when the university was in session, and 30 minute headway on Sundays, holidays, and summer vacation months. Riverside Park line service was on a 20 minute headway at all times, but there was a summer or two in the early years of the depression when service was reduced to hourly headway. No specific mention was made as to how the East Grand Forks line was included, if at all, in the through routing.

Six single end, single truck, Birney cars were acquired from St. Louis Car Co. in 1920. Numbered 116 through 126, even numbers only, they were equipped with a St. Louis #7 truck and painted medium green outside and cream with varnished wood inside. Cars 116, 118, 120 and 122 were assigned to the University-Lincoln Park line while 124 was assigned to the Riverside Park line. Car 126 was the extra car which replaced each car one day per week so that each car would have an off day for cleaning and servicing at the carhouse. Each morning, however, the off-duty car was obliged to make a tripper run to the university. The replacement schedule was: Monday 116, Tuesday 118, Wednesday 120, Thursday 122, and Friday 124; on Saturday 126 itself was serviced. Passengers did not like Birney cars as they swayed from side to side and bobbed up and down due to the light weight of the cars and the deteriorated condition of the track. They were irreverently called "tin cans" and "jiggers".

The older single truck cars gradually became inoperable in later years due to lack of maintenance and shortages of spare parts. Car 102 was reputedly sold to the Capital Car Line, Bismarck, N.D. As cars were still needed for tripper service to the university as well as for Fairgrounds service, three single truck, double end Birney cars were acquired second-hand in 1930 from Oshkosh, Wisconsin. These cars had been part of a 15 car order, numbered 70-84, built for Oshkosh in 1919 by Cincinnati Car Co. and equipped with a Cincinnati #139 truck. The three cars were re-numbered 128, 130 and 132 and were used only for the special purposes mentioned; they were never used for regular service on any line.

In 1922 the Red River Power Co. installed a new 250 KW motor-generator set replacing the original engine-generator unit.

The DeMers Ave. bridge was a wooden structure which was partially destroyed by a fire originating in East Grand Forks, resulting in cessation of service between Grand Forks and East Grand Forks. Consideration was given to installing tracks on the new Sorlie Memorial Bridge under construction in 1923 but newspaper articles indicate the company claimed it was not in a financial position to afford the expenditure.

The following table of track mileage operated was compiled from transit directories.

Year	Total Track-Miles	First Track-Miles	Sidings-Miles
1916-1918	8.5		
1923-1926	6.98	5.76	1.22
1927-1928	7.505	5.728	1.597
1929	7.505	7.487	0.018
1930-1931	6.60		
1932-1933	2.24		

The Riverside Park line was replaced by buses in 1931 while the Fairgrounds service was replaced in 1932. The Lincoln Park line was abandoned in either 1931 or 1932. The last operation was on the University line which was replaced by buses on July 1, 1934. The nine Birney streetcar bodies were sold for various purposes while the trucks and motors were scrapped.

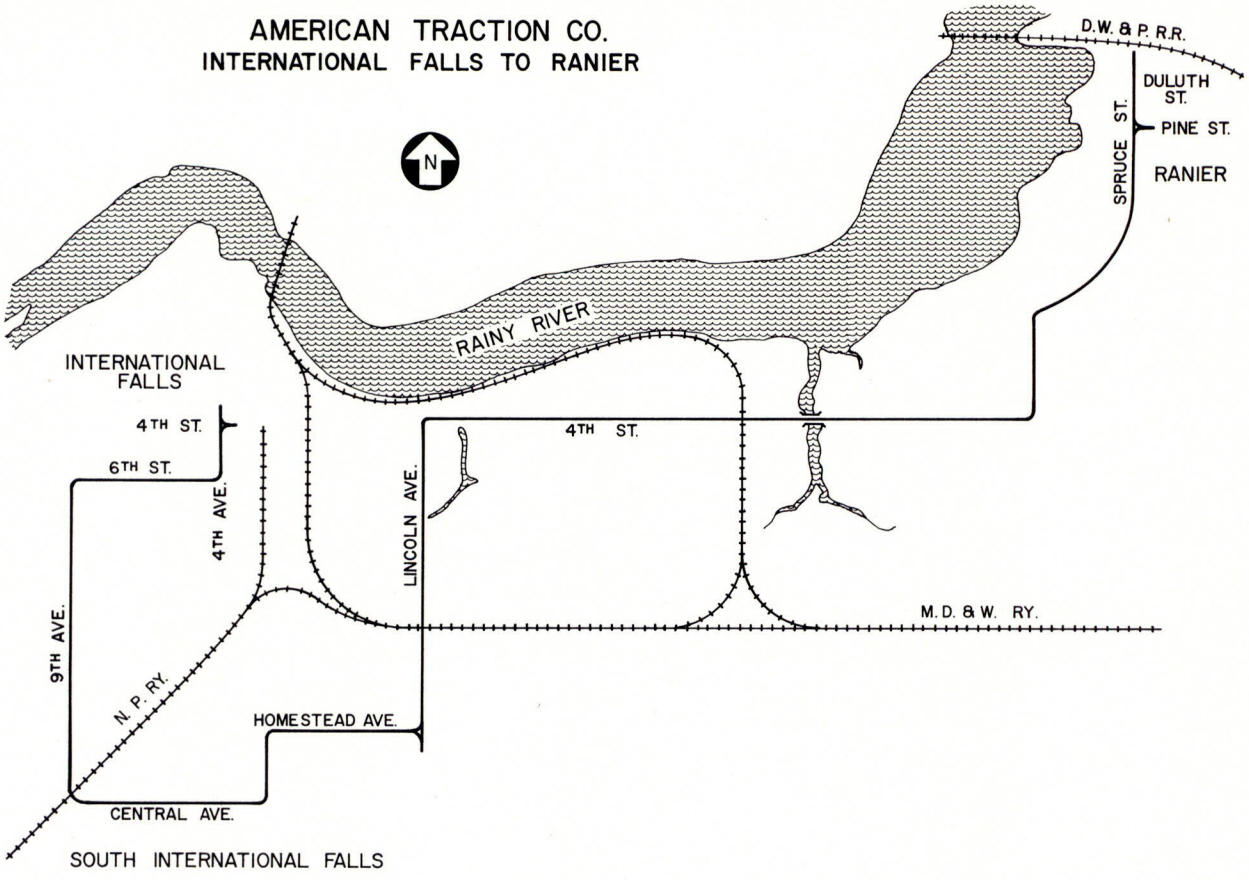
9. AMERICAN TRACTION CO.

International Falls, Minn.

International Falls is one of the northernmost communities in Minnesota and consequently experiences the ultimate in severe winter weather. Nevertheless it developed into an early lumbering center; its 1917 population was 1,487 persons. A short-lived railway operation connected International Falls with Ranier, on the Duluth, Winnipeg & Pacific Ry., about which very little has been learned.

The American Traction Co. was incorporated in September, 1912, in Maine and authorized to do business in Minnesota during December, 1912. Offices were located in Minneapolis at 340-346 Security Building. The line from International Falls, through South International Falls to Ranier is supposed to have been completed in 1913. Poor's Manual for 1916 lists the company as operating two storage battery-powered passenger cars over 6.75 miles of track.

The typical storage battery car was a small, single truck, closed car designed for operation over short distances, which found a place for service in small towns with cheap electricity, and for real estate development lines. However larger cars were manufactured for operation on short interurban lines and short low-traffic branch lines of steam railroads. The largest of the latter were produced by the Federal Storage Battery Car Co. to Edison-Beach patents and were double truck, 54 feet long, weighed 57,000 pounds, and were capable of speeds of 40 m.p.h. on runs of over 100 miles. However there were any number of intermediate size designs produced by several companies, ranging from 35 ft. long over-all to 50 ft. long over-all. Unfortunately we have not learned what type of design was operated in International Falls.



The Minnesota Power & Light Co. (later Great Northern Power Co.), operated a single track branch line from the Northern Pacific Ry. at Fond du Lac to their power plant at the Thompson Dam on the St. Louis River near Duluth. The glorified section car on the right was used to transport employees and passengers over this line beginning in 1908. It was replaced in 1913 by the more substantial gasoline-mechanical car on the left. This car in turn was replaced in 1923 by a Mack Model AB rail bus with McGuire-Cummings body. Passenger service was discontinued about 1926. The 1913 model car was somewhat similar to the gasoline-mechanical car operated by the American Traction Co. in International Falls. The Charles City Western Ry., Charles City, Iowa, acquired five single truck, single end, deck roof streetcars (without motors or controllers) from Peoria, Illinois in 1910. CCW Ry. equipped them with gasoline engines and mechanical drive. They were not considered successful and all were disposed of, number 5 being sold in 1916 to the American Traction Co. A photograph of this car is included on page 253 of the book "Iowa Trolleys" published by the Central Electric Railfans Association (B-114). (McKenzie Studios; Wayne C. Olsen collection)

A July, 1918, transit directory lists the company as operating 6.75 miles of 4'8½" gauge track; equipment was recorded as two gasoline cars, one Edison storage battery car, and nine other cars. It was stated that the line also reached Fort Francis, Ontario, Canada; this would imply that the company had obtained trackage rights over the steam railroad bridge which connected International Falls with Fort Francis.

Officers were A.L. Sortor (President), Charles M. Andrist (Vice President), L.L. Enger (Vice President), all of Minneapolis; L.H. Nord (Secretary & Treasurer), and R.B. Kook (General Manager), both of International Falls; and George R. Wiar (Auditor) of Ranier.

The Minnesota Railroad & Warehouse Commission records indicate that the International Falls Street & Interurban Ry. was operating the line in 1920, possibly referring to some type of corporate re-organization. However other records in their files list the line as being abandoned about 1919 or 1920.

10. ANOKA STREET RAILWAY

Anoka, Minn.

The first railroad line between Minneapolis-St. Paul and St. Cloud built through Anoka, a small city located at the junction of the Rum and Mississippi Rivers. In 1884 the Anoka St. Ry. opened a horse car line over the following route: from the north end of the Mississippi River bridge north on Ferry St. almost to Pleasant St.; and East on Main St. from Ferry St. to 4th Ave. No., north on 4th Ave. to North St., and east on North St. to the railroad stations.

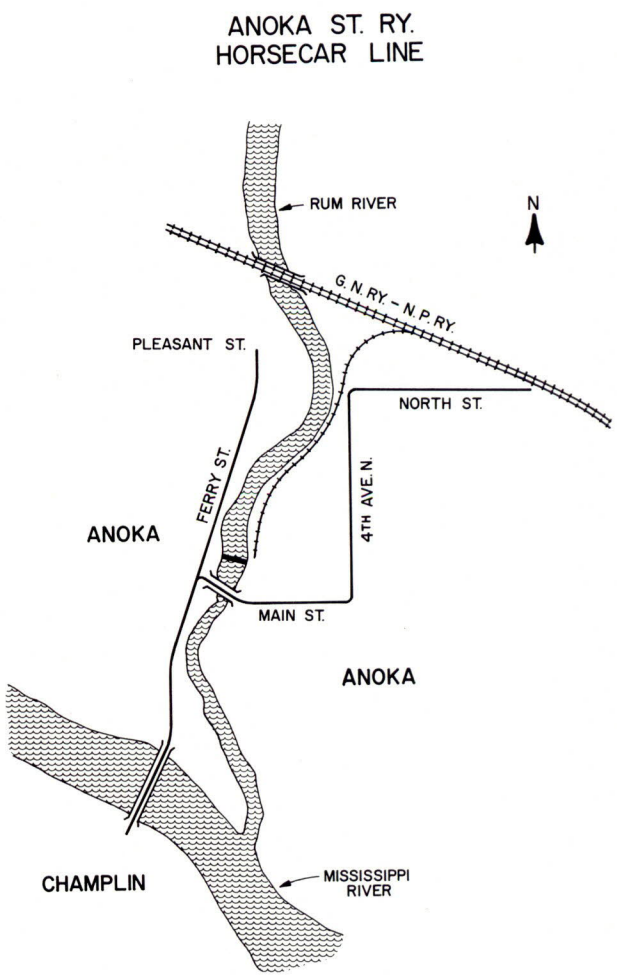
Strap rail was laid on wood stringers with widely spaced crossties. The line was officially opened on June 21st with two cars (#1 and #2); according to the newspaper "streets were filled with people, two bands played, and the skating rink was crowded."

The line competed with horse drawn "buses" which called at private homes to transport passengers to the railroad stations. The horsecar fare was 5 cents. A newspaper article dated October 21, 1885, reported on plans to extend the line the entire length of Ferry St. from Reed & Sherwood's Mill (later the Cornelius Co.) to Champlin over the old Mississippi River bridge. This was eventually accomplished as the city ordinance was amended June 18, 1888, to authorize the extension; the June 20, 1888 timetable listed the regular stops as: Champlin, Martinville, Chamberlain's Corner, and Depot. One week later the company began operating a baggage wagon from the public square to the depot.

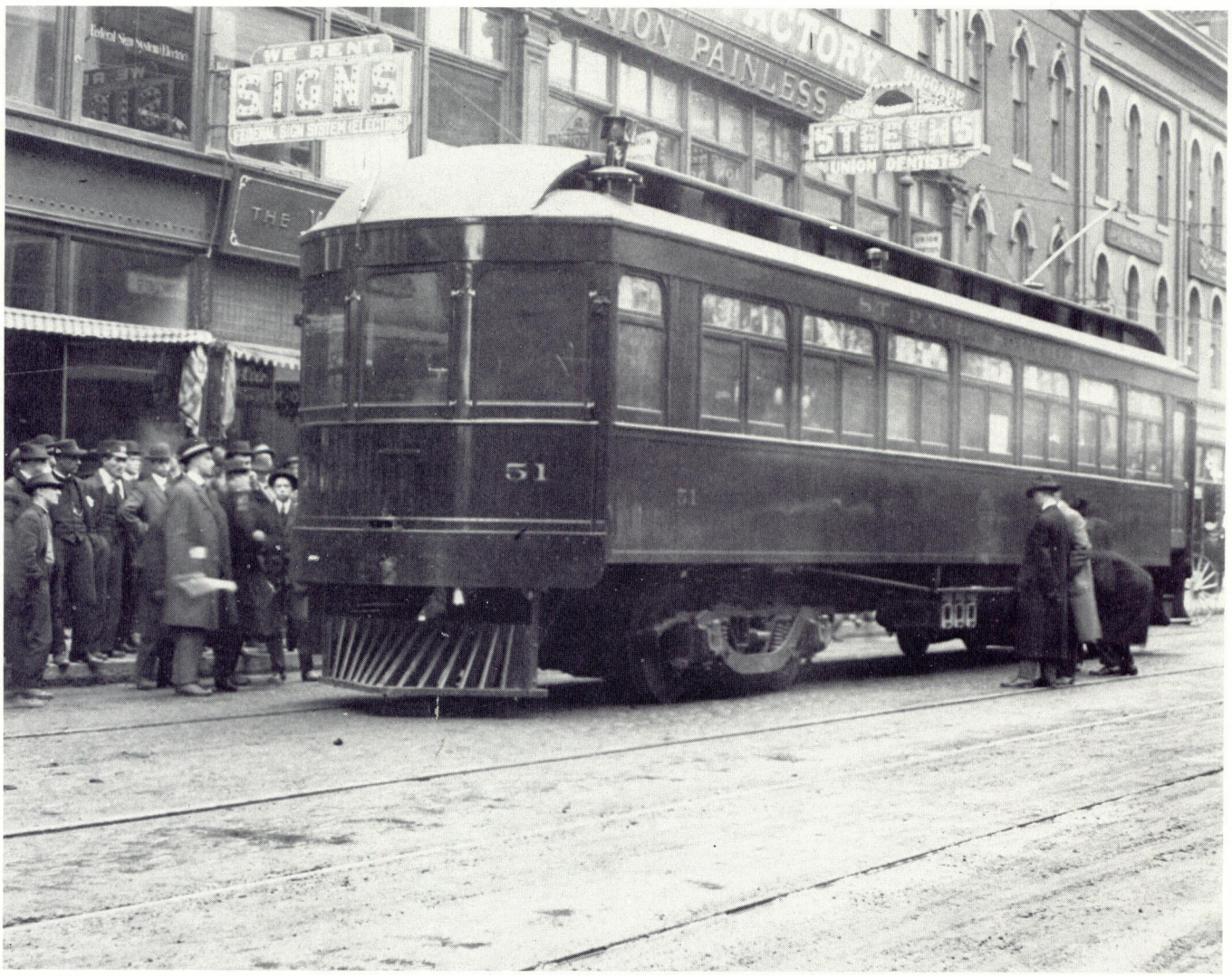
Financial difficulties quickly followed resulting in mortgage foreclosure proceedings. The mortgage holder sold the property in July, 1889, to Robert Mahany, proprietor of the "bus" line that operated from the city to the depot. The newspaper reported on July 3rd that a slight hitch had developed between the former owner and the mortgage holder relative to the ownership of car #3 and some of the horses, but that two cars had been turned over to Mr. Mahany and "yesterday they made trips over the line for the first time in four days."

The 1890 U.S. Census listed the following information: length of line 2.75 miles, sidings 0.25 miles, total track 3.00 miles; three horsecars and ten horses owned; and two cars were operated in regular service. The 1891 Street Railway Journal reported the following: officers: R. Mahany (President), R. Mahany Jr. (Vice President & Treasurer), James Mahany (Secretary), and W. Mahany (General Manager); three miles of track laid with 26 pound T rail to 4'8½" gauge; three cars and thirteen horses owned.

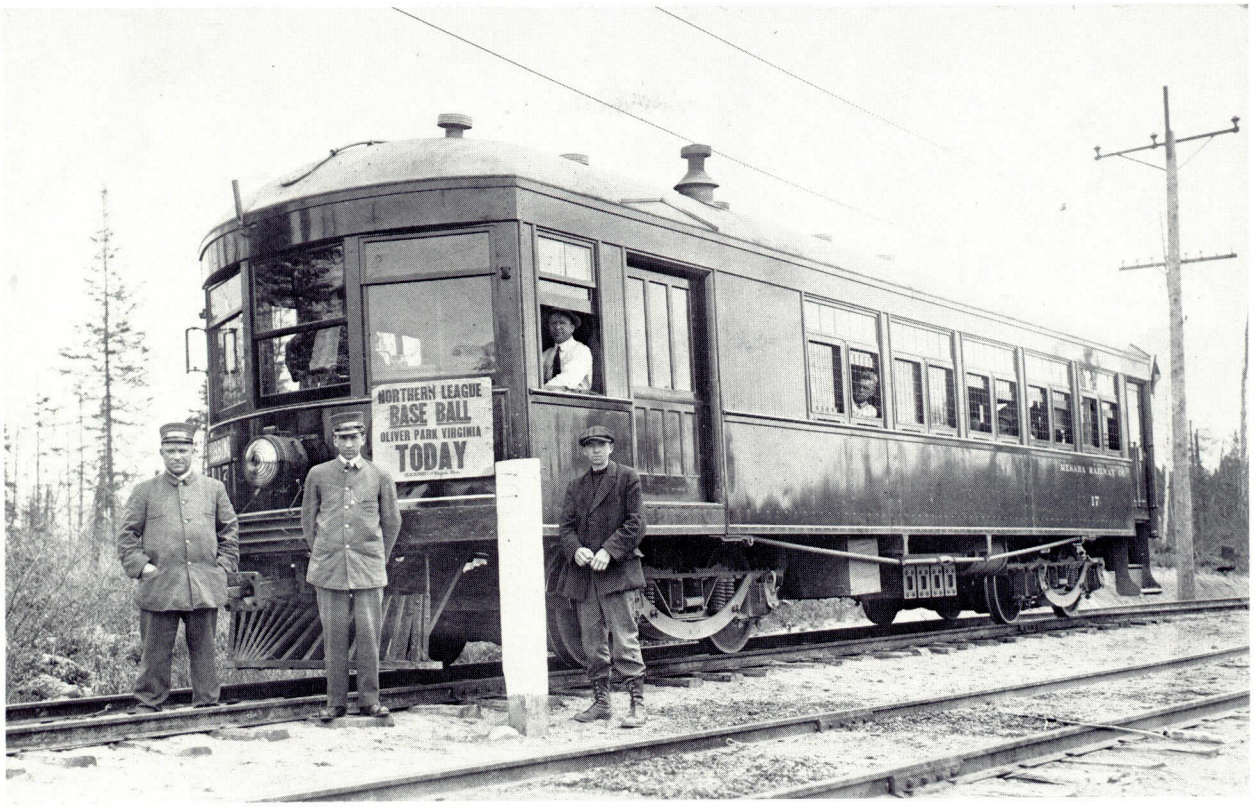
Information as to further activities of the company is lacking. The 1897 Street Railway Journal listed the company as operating six horsecars over three miles of track. Since the 1902 U.S. Census (the first since 1890) does not list the company we have assumed that abandonment took place sometime between 1897 and 1901.



SECTION IV
ELECTRIC INTERURBAN RAILWAYS



The first St. Paul Southern Electric Ry. car into St. Paul, #51, on Robert St. between 5th and 6th Streets, 1915. (Wendell Fritz)



Mesaba Ry. 17 on a siding at an unidentified location. (Wayne C. Olsen collection)

1. MESABA RAILWAY CO.

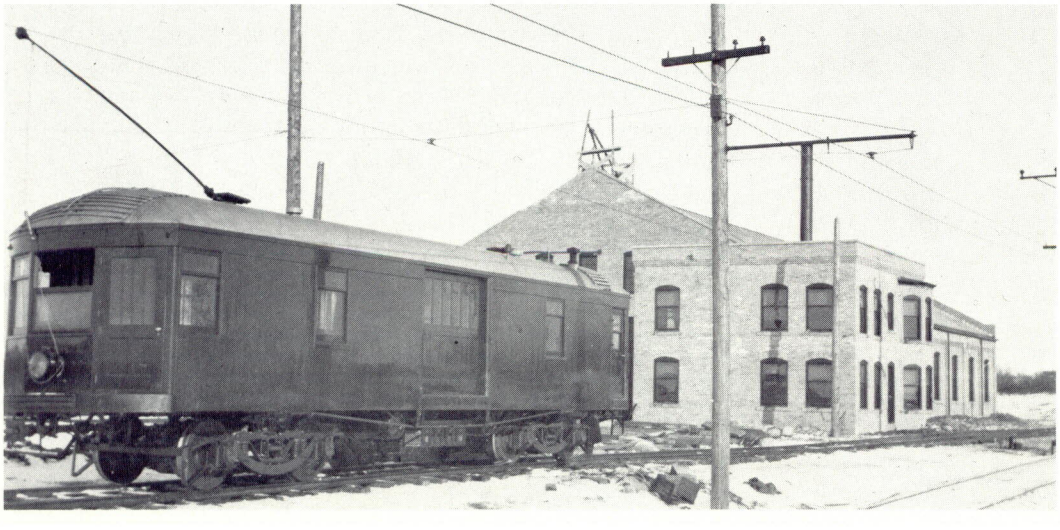
Hibbing to Gilbert, Minn.

The first of the vast iron ore deposits of north central Minnesota called the "Mesabi Range" were discovered by the three Merritt brothers of Duluth near Mountain Iron in November, 1890. The first trainload of iron ore from this mine arrived in Duluth during October, 1892. Mining activity increased rapidly as discovery of high-grade ore deposits continued. The range eventually became the world's largest source of iron ore. Cities and "locations" (as the mining settlements were called) grew rapidly also, the population largely made up of the laborers in the open-pit iron mines. By 1910 the population of the several cities was recorded as Hibbing 8,832 persons, Chisholm 7,684, Buhl 1,005, Mountain Iron 1,343, Virginia 13,671, Eveleth 7,036, and Gilbert 1,700. The total population of the area exceeded 55,000 persons. Although the area was served by a network of steam railroads, none were interested in the passenger business as the ore and lumber tonnage was substantial and profitable. One road did furnish passenger service between most of the important cities but transfers were necessary at junction points on an indirect route and long delays between trains were frequent. There was a natural inter-communication between the "locations" and cities and despite the inconvenient service there was a large amount of passenger traffic. Thus the possibilities for an electric railway through the area were considered excellent.

Two rival groups were seeking franchises from the various cities for an electric railway during 1907. In June of that year it was reported that the Northern Traction Co. of Hibbing had secured franchises in Hibbing, Chisholm and Buhl, while the Mesaba Traction Co. of Virginia had been equally successful in Virginia and Eveleth. Apparently neither company undertook actual construction. The Mesaba Electric Railway Co. was incorporated in November, 1910, and the Mesaba Railway Co. in January, 1911. (It was also reported that the Mesaba Electric Railway Co. was authorized to do business in Minnesota in February, 1912, as a holding company, and acquired all of the capital stock of the Mesaba Railway.) Boston financial interests were the chief investors although many prominent Minnesotans from the iron range communities and Duluth acquired stock: W.P. Chinn, Samuel J. Cusson, Richard Chinn, Dr. E.H. McIntyre, John D. Lamont, Chester H. Rogers, Dr. Dana C. Reed and Albert B. Coates. The first officers of the Mesaba Railway Co. were Oscar Mitchell, Duluth, (President); Robert Watson, Philadelphia, (Vice President); Philip L. Saltonstall, Boston, (Treasurer); and Henry S. Newton (General Manager). C.E. Thomas was chief engineer during construction of the railway.

Above: Car 15 southbound on 3rd Ave. at Center or Cedar St., Hibbing, on the original line.

Center: Car 17 with trailer westbound on 3rd Ave. W. at 6th St., Virginia, in the early months of operation. The pilot has not yet been installed on the motor car.



Below: An express motor car newly received from the builder on the siding at the Virginia carhouse. Finishing touches are being placed on the carhouse building.

(All photographs Wayne C. Olsen collection)

The engineering force was organized and began surveying during 1911. Some unusual difficulties were encountered in the construction of the railway although the natural topography was slightly rolling country. Large piles of earth stripping removed from the surface of the open-pit iron mines would have entailed prohibitive grading costs to build through so it was decided to build around them with easy curves and at the same time obtain a reasonable grade line. Numerous sink-holes and bogs made it practically impossible to obtain permanent bearings, and at other points the road was constructed through fields of large boulders. General contractor was the Western Construction Co., also owned by the stockholders of the Mesaba Railway. Grading was performed by John Runquist of Duluth. The Cleveland Construction Co., of Cleveland, Ohio, was the subcontractor for all electrical design and construction. Bridges and trestles were built by the Gallagher Bridge and Construction Co. Laying of rails began early in July, 1912.

The line was built on private right-of-way 50 ft. in width through the rural areas, and in streets through the cities and villages. As the rural population was very small with little or no farming, it was unnecessary to fence the right-of-way. There were few streams requiring bridging and the only waterways of any consequence were a few shallow lakes. Numerous railroad crossings were necessary; crossings at grade were used only where a grade separation was not feasible or railroad traffic was very light. The standard roadway construction involved a 14 ft. roadbed on embankments with 3 ft. ditches on each side in excavation. 6" of gravel ballast, from a pit on the right-of-way, was then placed on which was laid 6" x 8" x 8' tamarack ties, and ASCE 70 lb. rail. Ohio Brass Co. compressed terminal bonds of the concealed type with exposed terminals were used for ease in locating defective bonds. Initial reports listed 34.80 miles of first main track, 0.90 miles of sidings and 35.70 miles total track. Subsequent reports indicated 35.00 miles of first main track, 0.87 miles of sidings, 0.68 miles of carhouse track, and 36.55 miles total track.

The 4/0 grooved trolley wire was supported by pipe mast-arms attached to 40 ft. Idaho cedar poles which also carried the telephone, signal, and transmission line wires. Some span wire construction, using wooden poles on right-of-way and steel poles on streets, was erected through Hibbing, Chisholm, Buhl, Virginia, Eveleth and Gilbert.

The power station was located on the property of the Virginia & Rainy Lake Lumber Co. about ¼ mile from the main track where it entered the city of Virginia. Because of the high cost of coal it was decided to use the waste and refuse from the lumber mill for fuel; water was obtained from a nearby lake. A belt conveyor from the lumber mill fed directly into the firing room of the power station. The building measured 120'6" x 58'9" and was divided into two sections: a 67'0" x 37'6" boiler room and 53'6" x 58'9" turbine room. Construction was of steel with a brick and concrete super-structure erected upon a concrete foundation supported by piling. Three 300 h.p. Edge-Moor horizontal water-tube boilers each had four fuel chutes and firing doors. They were designed for 175 lbs. per sq. in. steam pressure developing 450 h.p. each, and were served by three 150' high guyed steel stacks 4'6" in diameter. Generating equipment consisted of two 750 KW, 600 volt, 3 phase 60 cycle, horizontal condensing turbines. For regular service, excitation was obtained from a 75 h.p., 600 volt, 3 phase induction motor direct-connected to a 60 KW, 125 volt, compound wound exciter. Designed to run in parallel with the foregoing, for use when the plant was shut down, was a self-contained unit consisting of a 35 KW, 125 volt, non-condensing turbine exciter. The line was originally intended for 1200 volt D.C. operation but before actual construction began it was decided to design the motor-generator sets for 750 volts D.C. and to operate at 600 volts D.C. Shortly after operation started traffic was much heavier than anticipated and it was discovered that the distribution system was barely sufficient to handle the peak traffic. It was then decided to make full use of the designed equipment and the voltage was raised to 750 volts D.C.

A transmission frequency of 22,000 volts, 60 cycle A.C. was selected because the company planned to enter into the power and lighting business as well. As of January, 1914, it had contracts with three cities and was in the process of negotiating several others. This voltage was also used by the power plant of the Virginia & Rainy Lake Lumber Co.; a 3 phase line was built between the two switchboards so that each station could synchronize with the other in case of interruption. In addition the main steam headers of each station were connected. A transmission line consisting of three #2 copper wires connected the power station with the substation at Chisholm. Two substations were used to operate the line. A portion of the turbine room in the power station was used for a substation and contained two General Electric 300 KW synchronous motor-generator sets served by three 250 KVA water-cooled transformers. A waiting station-substation building was constructed 20 miles west at Chisholm, the substation being operated in conjunction with the passenger and freight station, a single agent handling all the functions. The building measured 47'6" by 27'6" and was constructed of concrete foundation, steel frame, brick walls, and 4" concrete slab roof covered with asphalt-gravel roofing. The A.C. transmission line passed through choke coils and disconnect switches, and connected by way of oil switches to 200 KVA self-cooled transformers. Two General Electric 300 KW motor-generator sets converted the A.C. to 750 volts D.C. Two 400,000 circular-mil D.C. feeders extended in both directions from the Virginia substation: one to the Chisholm substation and the other to Gilbert. One 300,000 circular-mil feeder was installed from the Chisholm substation to Hibbing.

The office building and carhouse were constructed in

Virginia adjacent to the main track on a strip of property 200' wide. The carhouse building was 86'2" wide and 122'2" long, constructed of concrete foundation, steel frame, and brick walls with a wood roof. Four tracks, with a capacity of two cars each, ran through the building, two of them with a repair pit 56' long situated at one end opposite the repair shop space. The repair shop and storeroom occupied a 20' aisle on one side of the carhouse enclosed with brick partitions. All track entrances were provided with rolling steel doors. A two-story office building measuring 34'10" x 36'0" adjoined the carhouse, containing the general and operating offices of the company.

The initial equipment consisted of five passenger motor cars (10-14), five passenger-baggage motor cars (15-19), four passenger trailers (1-4), and two freight-express motor cars (101-102). All were constructed by the Niles Car Co., Niles, Ohio, during 1912. The Duluth News Tribune of August 16, 1912, reported that the cars were exhibited at the American Electric Railway Association Convention in Chicago during October, then hauled as a special train to St. Paul where Great Northern Ry. took it over for delivery to Virginia. During 1913 one combination line car and snow plow (99) was received from the Wason Mfg. Co., Springfield, Mass. Also during 1913 three passenger trailers (5-7) were acquired second-hand (apparently former elevated railway cars, possibly from New York) to handle the unanticipated heavy passenger traffic.

The first car to operate over the line began providing hourly service between the Virginia carhouse and Gilbert on December 24, 1912. On Christmas Day two-hourly service was begun between Buhl and Gilbert. On January 22, 1913, regular hourly service from 6 A.M. to midnight daily, was inaugurated over the entire line from Hibbing to Gilbert using 6 cars. As track and equipment were broken in, the running time was gradually decreased so that the regular hourly service requirements were reduced to 5 cars (February 15, 1913) and finally 4 cars (August 4, 1913). In many instances this service was not adequate and it became necessary to utilize all the passenger equipment the company had to move the traffic. Most of the extra traffic was due to shift changes at the mines; this was handled by two-car trains consisting of a motor car and trailer. Two and three-car trains (motor car and one or two trailers) were run on weekends, holidays and special occasions. The largest proportion of passenger traffic was between Virginia and Eveleth. The carhouse was especially well located to handle this as a trailer could be added to eastbound cars and removed from westbound cars as they passed the carhouse. The Egry train order system was used exclusively and all telephone booths and other points at which orders were received from the train dispatcher (located at the Virginia office building) were equipped with Egry dispatching machines.

Express service was begun in mid-August, 1913, with two trains in each direction daily except Sunday, carrying general merchandise in less-than-carload lots. Rates charged were approximately 30% above the standard steam railroad freight rates. It was reported at this time that as the territory served was almost frontier in character, shippers and consumers were just beginning to realize the value of the high quality express service which the company offered.

When the line first opened, the Simmen system of block signals, using home and distant third rails each 70' long, was installed to protect the single track between sidings, which were located at approximately six-mile intervals. Signal lights in the motorman's cab were operated from the third rails by contact shoes mounted on the front truck of each motor car. A directional movement protection feature was included. A system of outside signal lights operated in conjunction with the Simmen system were used in Hibbing and Gilbert because the terminals were located on paved streets where the third rails could not be installed. Use of this system was eventually discontinued and the equipment removed.

On November 26, 1913, the hot-water heater in a passenger motor car exploded, the car being inside the carhouse. The resulting fire completely destroyed the carhouse building, adjoining office building, and the following equipment: passenger motor car 13, passenger-baggage motor cars 15-18, express-freight motor car 101, and passenger trailer 7. (The trucks from 7 were salvaged.) The loss was entirely covered by insurance so identical replacements were ordered from Niles Car Co. for all of the cars except passenger trailer 7, which was never replaced. These cars were received during March through June, 1914, and bore the same numbers as their predecessors. (Cars 13, 16-18 were listed as of steel construction while 15 was of semi-steel construction.) On April 9, 1914, passenger motor car 12 was destroyed by fire about 2 A.M., also caused by explosion of the hot water heater. The loss was covered by insurance so a replacement car was ordered from Niles Car Co. However the second 12 was a passenger-baggage motor car. Meanwhile a temporary frame structure had been erected over the two pit tracks inside the burned-out shell of the carhouse for servicing and maintaining the equipment until construction of the new building was nearly completed in the summer of 1914. The new office and carhouse buildings were similar in size and design to the original buildings with two exceptions: a flat concrete roof was placed on the carhouse, and the office building was physically separate from the carhouse. A paint shop building was built during the summer, 1914, measuring 62'0" x 20'0" and constructed of concrete foundation, steel frame and brick walls; one track ran through the building with a steel rolling door at each end.

During 1914 the company constructed two work-flat motor cars (200-201) in the Virginia shops. Passenger trailer 5 was converted into a parlor car during 1914; in 1920 it again became a regular passenger trailer.

A territory almost as rich in iron ore deposits which abounded with "locations" and growing towns lay both to the east and west of the existing terminals of the line. It was intended to extend the line to serve these communities and to ultimately develop a power and lighting business in the entire territory. However it was announced on February 16, 1913, that the construction of the projected westward extension to Grand Rapids would be delayed for some time. No additional construction was ever undertaken. During 1916 a bus line began operating between Virginia and Aurora. The Mesaba Ry. rented one bus from this company and operated it during the three summer months between Gilbert and Biwabik (the site of the second iron ore discovery by the Merritt brothers in August, 1891) but discontinued the operation as it proved unprofitable.

The Mesaba Railway was re-incorporated in Massachusetts and purchased the assets of the Minnesota corporation of the same name in July, 1914. R.W. Reynolds became General Manager in December, 1914, and served in that capacity until December 31, 1918, when he was succeeded by L.W. Hayes, who served until operations ended. Officers and directors of the company were: Oscar Mitchell (President); Robert Watson (Vice President); Janet Macaulay, Duluth (Secretary); Philip Saltonstall (Treasurer); W.P. Chinn, Duluth; A.B. Coates, Virginia; H.S. Graham, Philadelphia; and C.A. Duncan, Duluth. By 1918 the power station in Virginia had been leased to the Great Northern Power Co. (later the Minnesota Power & Light Co.) and the A.C. was purchased from them.

The Hull-Rust mine of Oliver Iron Mining Co. had grown steadily and soon surrounded Hibbing on three sides. Discovery that the rich ore deposits continued underneath the city led to the decision to physically move a substantial number of the buildings to a new site to the south, then known as Alice. The relocation was started in 1919 and was well along by 1921. The remaining portion of the original location was called North Hibbing while the new site was re-named South Hibbing, although the entire area was within the city limits of Hibbing. This relocation affected the Mesaba Ry. in that a major portion of its line between Hibbing and Chisholm interfered with the expanded mining operations. Provisions in the right-of-way easements with the mining companies included a ninety-day notice of cancellation of right-of-way privileges when such mining interference occurred. It thus became necessary to build a new line between Hibbing and Chisholm if the company was to remain in business. Because of labor and material shortages caused by war conditions, Oliver Iron Mining Co. agreed to furnish labor and materials to construct the new line for which Mesaba Ry. agreed to issue bonds to Oliver to cover the amount expended. During the 1919 to 1921 period a total of 8.19 miles of new line was constructed; about 6 miles consisted of the track between Hibbing and Chisholm and 2 miles in Hibbing itself connecting North and South Hibbing. A terminal building was constructed at 6th Ave. and Howard St. in Hibbing containing a ticket office-waiting room, freight house, carhouse and substation. This building was constructed of concrete foundation, steel framing, brick walls and 4" concrete roof. The carhouse portion contained two tracks, each with a pit of sufficient length to service a 49' long car; steel rolling doors were installed at each track entrance. The substation portion contained two motor-generator sets with au-

Looking west on Howard St. from 6th Ave., Hibbing, June 3, 1921. Construction on the carhouse-waiting station building, right, had not yet started. (Oliver Iron Mining Co.; Wayne C. Olsen collection)

tomatic controls. Apparently the feeder system was also re-arranged for it was reported that 250,000 circular-mil feeders were employed. The new Hibbing-Chisholm trackage was opened for service on December 11, 1921. Total cost of construction was $486,110.93; apparently Mesaba Ry. directly paid part of the cost, for on January 1, 1922, Income 6% Gold Bonds due March 1, 1931, were issued to Oliver Iron Mining Co. in the amount of $370,000.00 to cover the expenditures made by them. The track mileage was then reported as 38.33 miles of first main track, 2.06 miles of sidings and carhouse track, and 40.39 miles total track.

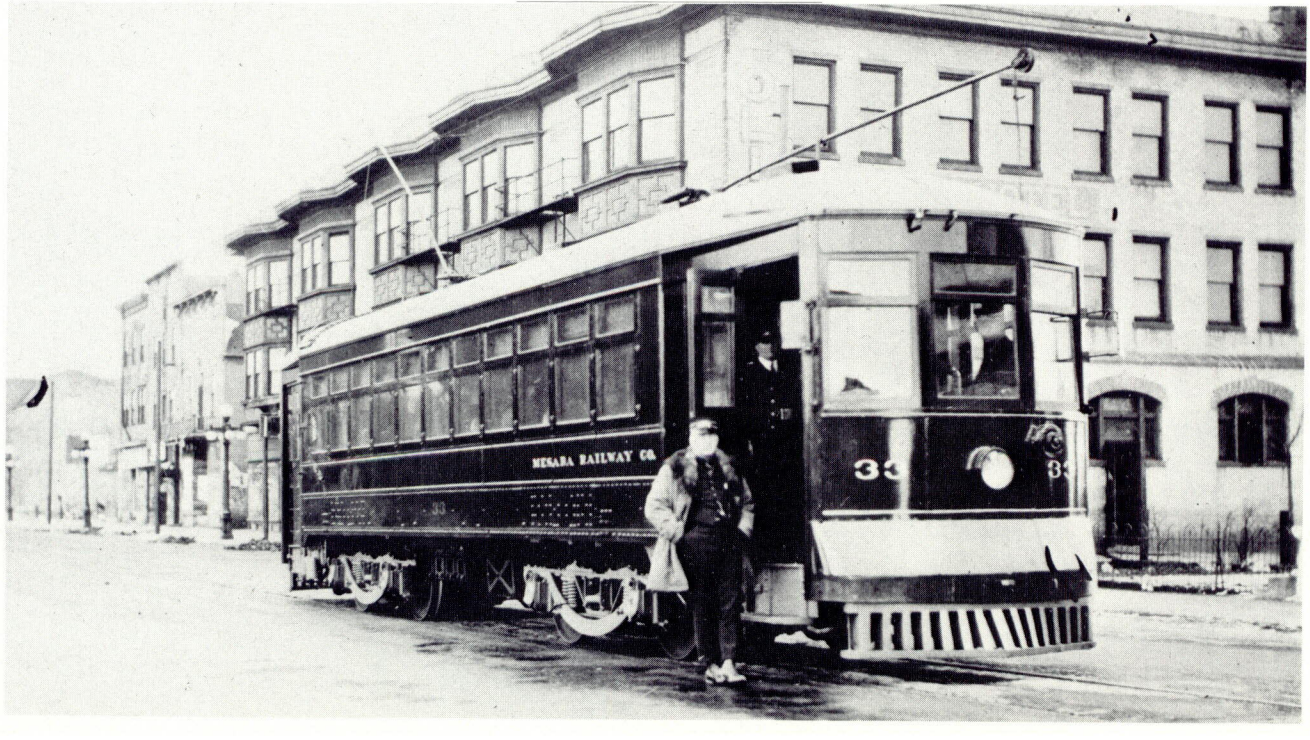
By 1920 the population of Hibbing and Virginia had increased to 15,089 and 14,022 persons respectively. Passenger traffic between Virginia and Eveleth had become sufficiently heavy to warrant addition of another run so as to provide 30 minute service between the two communities. Local service was also operated in Hibbing connecting the new business district with North and South Hibbing; this service began December 11, 1921, over the newly constructed trackage using two passenger motor cars (32-33) which had been acquired second-hand for this purpose.

Station agents were originally located at Hibbing, Chisholm, Buhl, Mountain Iron, Eveleth and Gilbert. By the early 1920's the number of agents and facilities had been expanded. Agents operating from company-owned buildings were located at Hibbing (after October 1, 1920), Kitzville, Chisholm (substation building), Kinney and Mountain Iron. Agents in rented facilities were located at Hibbing (until October 1, 1920), Buhl (drug store), Virginia-North Side (grocery store), Virginia-Center (confectionary store 1913-1917; drug store 1917 onward), Eveleth, Genoa (post office and confectionary store), and Gilbert (confectionary store and ice cream parlor).

The Minnesota Highway Department in 1920 started a program of concrete highway construction and within a few years all-weather roads were in use between all of the communities served by the railway. With the increased use of automobiles and unregulated motor bus competition it became increasingly difficult to earn sufficient revenue to cover operating expenses, taxes, and the interest on the bonds. The company began operating at a loss in 1921. On March 7, 1924, the Mesaba Ry. was placed in receivership with Oscar Mitchell of Duluth and James C. Chestnut of McAlester, Oklahoma, being appointed as Co-receivers. During 1925 one-man operation of the cars was begun. The Mesaba Ry. Coach Co. was organized and invested $150,000 (secured through the assistance of the bondholders' protective committee) in a fleet of high-speed buses which were operated between (1) International Falls and Duluth, and (2) Hibbing and Aurora.

In early 1927 the company offered to sell the electric railway. When no response was received, the company approached Hibbing and Chisholm businessmen with the proposition that they pool their resources and purchase and operate that portion of the railway between Hibbing and Chisholm. This proposal was turned down. Persons involved with the company claimed that had the public been more friendly and the elected officials of the iron range communities more considerate, the eastern interests would have put up funds to continue the venture by purchasing equipment and facilities more capable of meeting the competitive situation. Instead the decision was made to cease all operations and dispose of the property. Accordingly the last interurban cars made their final runs April 16, 1927.

Car 33 on the opening day of city service, December 11, 1921, in North Hibbing. (Oliver Iron Mining Co.; Wayne C. Olsen collection)



During the remainder of 1927 the property was disposed of as follows:

Rails and overhead wire and fittings were sold to the Duluth Iron & Metal Co. for $84,300.

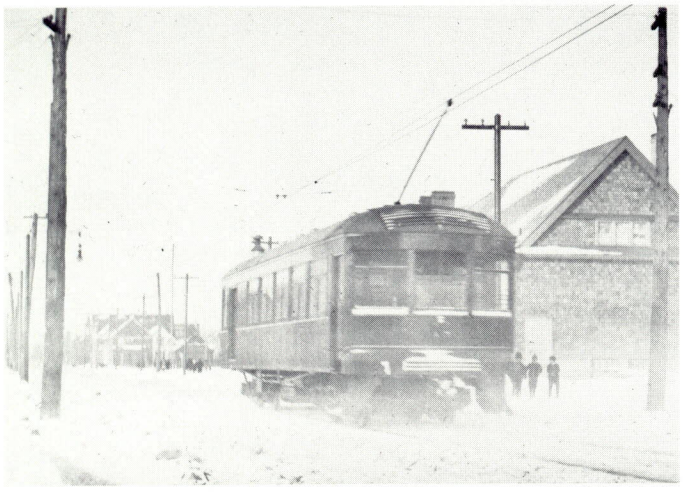
Trucks and motors from all passenger, freight, trailer and flat cars sold to the Duluth Iron & Metal Co. for $5,000.

All bridges and trestles sold to the Elizabeth Mining Co. for $3,500.

The Virginia carhouse and office buildings sold to the Minnesota Highway Department for $15,000.

The Hibbing terminal building sold to the Reed-Hynes-Quinlan Co., an automobile dealer, for $16,100.

Disposal of the property was completed in December, 1927, and the Mesaba Ry. passed into oblivion.



Northbound car on 3rd Ave. So., at 7th St., Virginia, on a wintry day during the first months of operation. (Wayne C. Olsen collection)

The following data has been abstracted from detailed information compiled by Jay Bergerson, the company's auditor, and is presented as supplementary material.

Track Construction

The original main line from Hibbing to Gilbert was laid with 70 lb. rail, except for certain sections in paved streets where 72 lb. rail was used. Carhouse tracks were laid with 60 lb. rail. The track relocation between Hibbing and Chisholm, and also in Hibbing, during 1919-1921, was laid with 100 lb. rail.

Switches were located at:
Hibbing Park: double end siding
Hibbing carhouse: two tracks
Hibbing waiting station: wye
Hibbing-7th Ave. and Howard St.: wye
Mitchell-East Hibbing: siding
Glen Spur (Station 8): siding
Ballast-West Chisholm: siding
Chisholm waiting station: wye
Boulder: siding
Buhl (west end): wye
Runquist: siding
Williams: siding
Center: siding
Brunt: siding
D. M. & N. Ry.: connecting track
Virginia carhouse: lead track switch, siding, and 9 storage track switches
Virginia: wye
South Virginia-Thomas: siding
Summit gravel pit: siding
Eveleth: wye
Sparta: siding
Gilbert (east end): wye

Railroad grade crossings were located at:
South Hibbing-1st Ave.: 4 tracks
Glen Spur (Station 8): 2 tracks
Chisholm (east of the wye): 3 tracks
Kinney: 1 track
Brunt (Station 29½): 1 track
Virginia-west of the carhouse: 1 track
Virginia-North Side: 2 tracks
Virginia-Oliver Shop: 1 track
Virginia-Bailey Mill: 1 track
South Virginia: 2 tracks

Derails for the railroad crossings were located at:
Kinney (Station 23)
Brunt (Station 29½)
Virginia-1000 ft. west of the carhouse
Virginia-bridge at the Bailey Mill

Bridges and Trestles

North Hibbing: 100 ft. steel bridge over the D. M. & N. Ry.

Mitchell: 1221 ft. timber trestle, with two steel spans, over four tracks of the G. N. Ry. and D. M. & N. Ry.

Chisholm lake: 1920 ft. timber trestle.

West of Buhl: 405 ft. timber trestle, with one steel span, over the G. N. Ry.

West of Buhl: 45 ft. timber trestle.

West of Station 16: 45 ft. timber trestle.

East of Station 16: 105 ft. timber trestle.

Sharon: 780 ft. timber trestle, with one steel span, over the D. M. & N. Ry.

Kinney: 1110 ft. timber trestle, with one steel span, over the G. N. Ry. and D. M. & N. Ry.

East Kinney: 150 ft. timber trestle.

East Kinney derail: 90 ft. timber trestle.

Ellis: 120 ft. timber trestle.

Kinross: 90 ft. timber trestle.

Center siding: 225 ft. timber trestle.

Brunt siding: 75 ft. timber trestle.

East Parkville: 15 ft. timber trestle.

West of Virginia carhouse: 930 ft. timber trestle, with one steel span, over the Canadian Northern Ry., built in 1914.

Looking west toward the Oliver Shop, Virginia, from the 750 ft. timber trestle at the Bailey Mill. (Wayne C. Olsen collection)

Virginia-Oliver Shop: 345 ft. timber trestle.
Virginia-Bailey Mill: 750 ft. timber trestle.
Thomas siding: 75 ft. steel bridge, owned by the D. M. & N. Ry.
Eveleth: 705 ft. timber trestle.
Sparta: 60 ft. timber trestle.

Track in Paved Streets – Original Line

Hibbing: from 3rd Ave. and McKinley St., on 3rd Ave., Pine St., and 1st Ave., to 668 ft. north of Seller's Bridge (on 1st Ave.) = 5,868 feet or 1.11 miles. (Track abandoned in 1921 was from 3rd Ave. and Railroad St., on 3rd Ave., Pine St., and 1st Ave. to 668 ft. north of Seller's Bridge = 3418 ft. or .65 miles.)

Chisholm: on Center St. (Central Ave.) from 1st St. N.W. to Lake St., and on Lake St. from Center St. to 4th Ave. = 2,169 feet or .41 miles. (In 1914 concrete was placed between the rails on Lake St. from 4th Ave. to one block west. In 1915 and 1916 concrete paving was placed around the wye tracks.)

Buhl: on Culver Ave. from State St. to Wanless St., and on State St. from Culver Ave. to 450 ft. west of Mercer Ave. = 2850 feet or .54 miles.

Virginia: on 9th St. No. from the first gate at Olcott Park east to 3rd Ave., on 3rd Ave. from 9th St. No. to 10th St. So., on 10th St. So. from 3rd Ave. to 2nd Ave., and on 2nd Ave. from 10th St. to 800 ft. south of 11th St. = 7805 feet or 1.48 miles. (In 1918 additional paving was placed at the south end of 2nd Ave. near the approach to the D. M. & N. Ry. viaduct; a later listing indicating paving extended as far south as 13th St.)

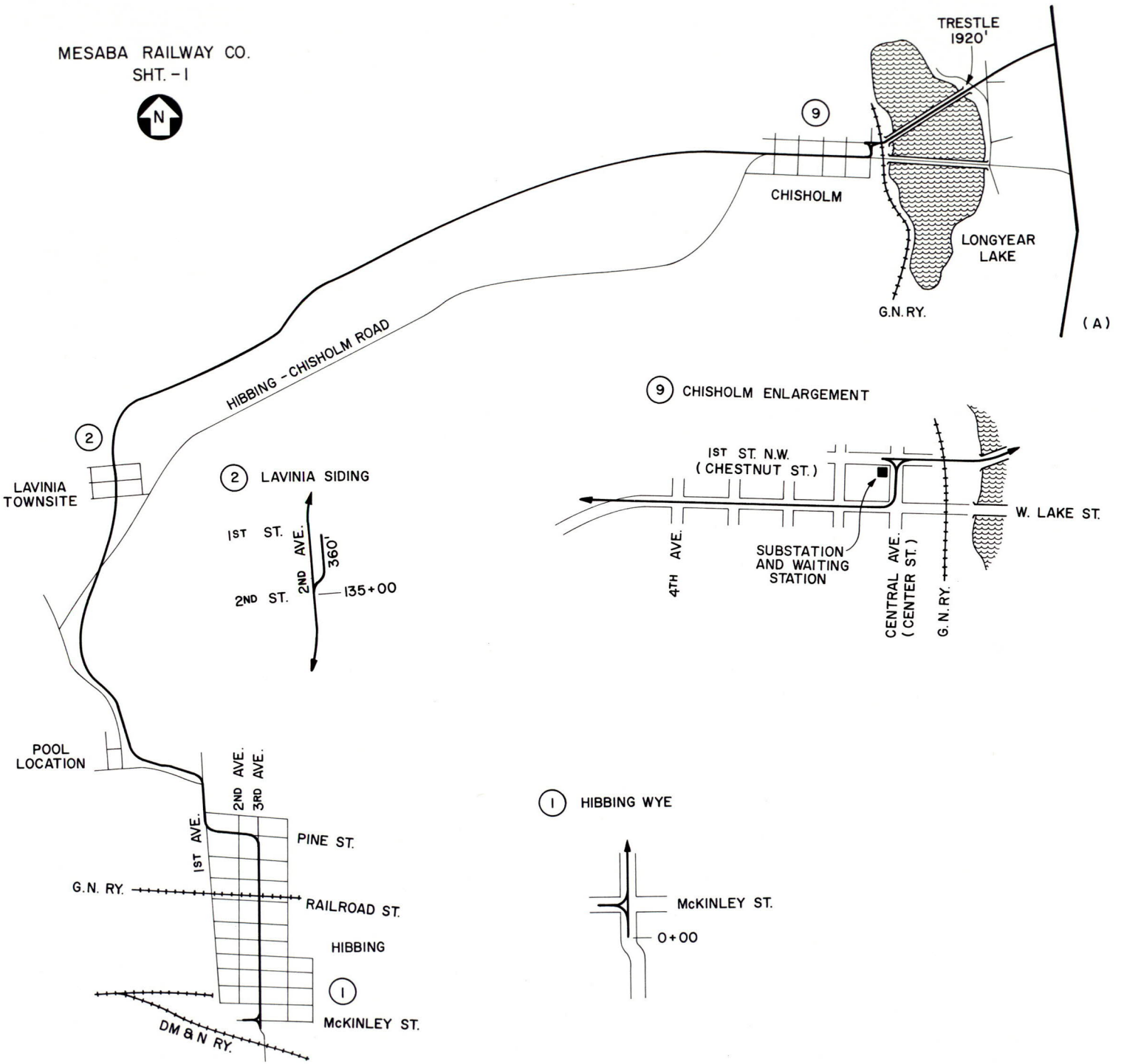
Eveleth: on Adams Ave. from Harrison St. to Fayal Road, and on Fayal Road from Adams Ave. to Bridge 614 = 5160 feet or .98 miles.

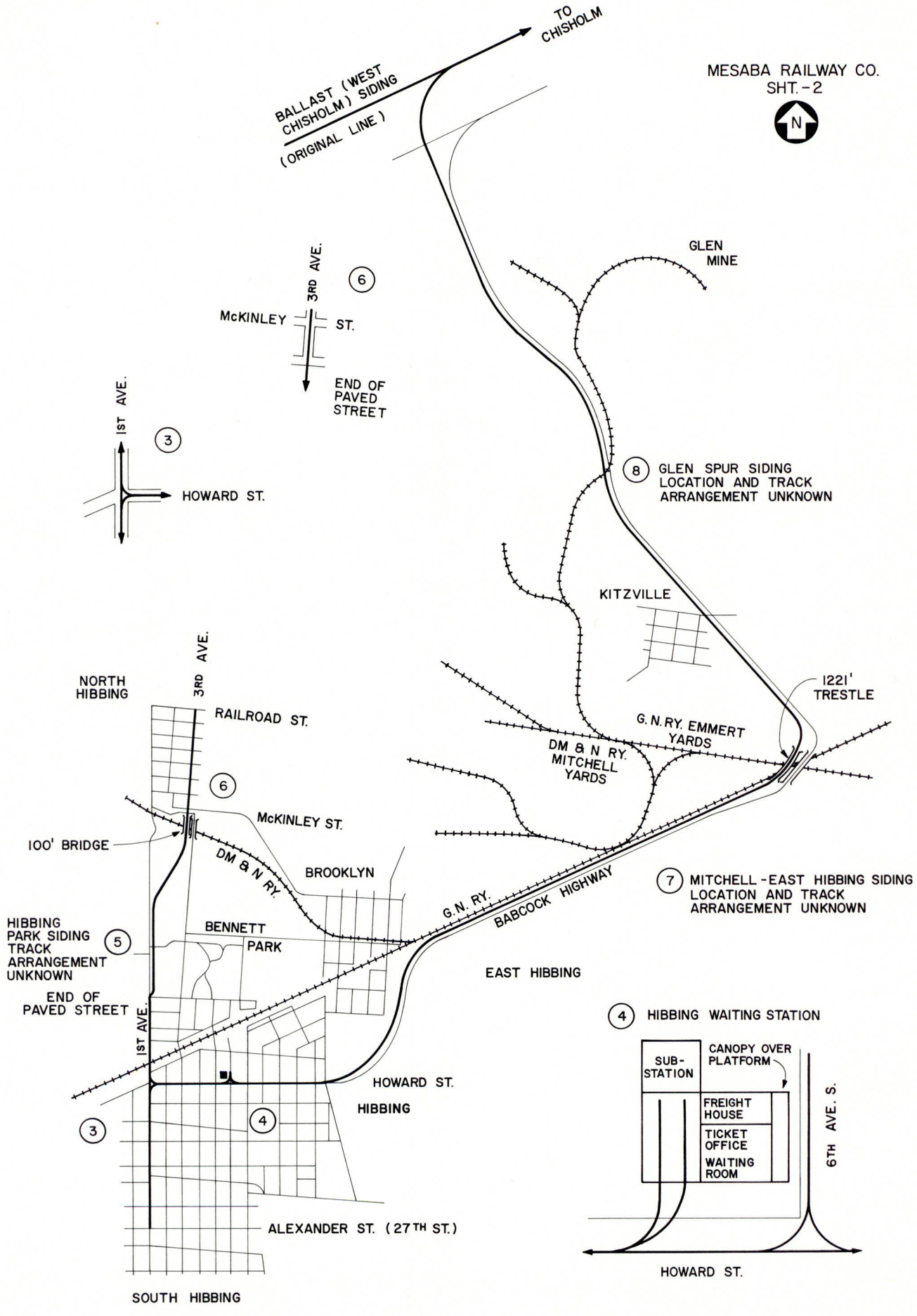
Gilbert: on Broadway from Nebraska Ave. to 150 feet east of Indiana Ave. = 2850 feet or .54 miles. (This was done in 1916 and 1917 at which time it was reported that an additional 900 feet of track using 70 lb. rail was laid.)

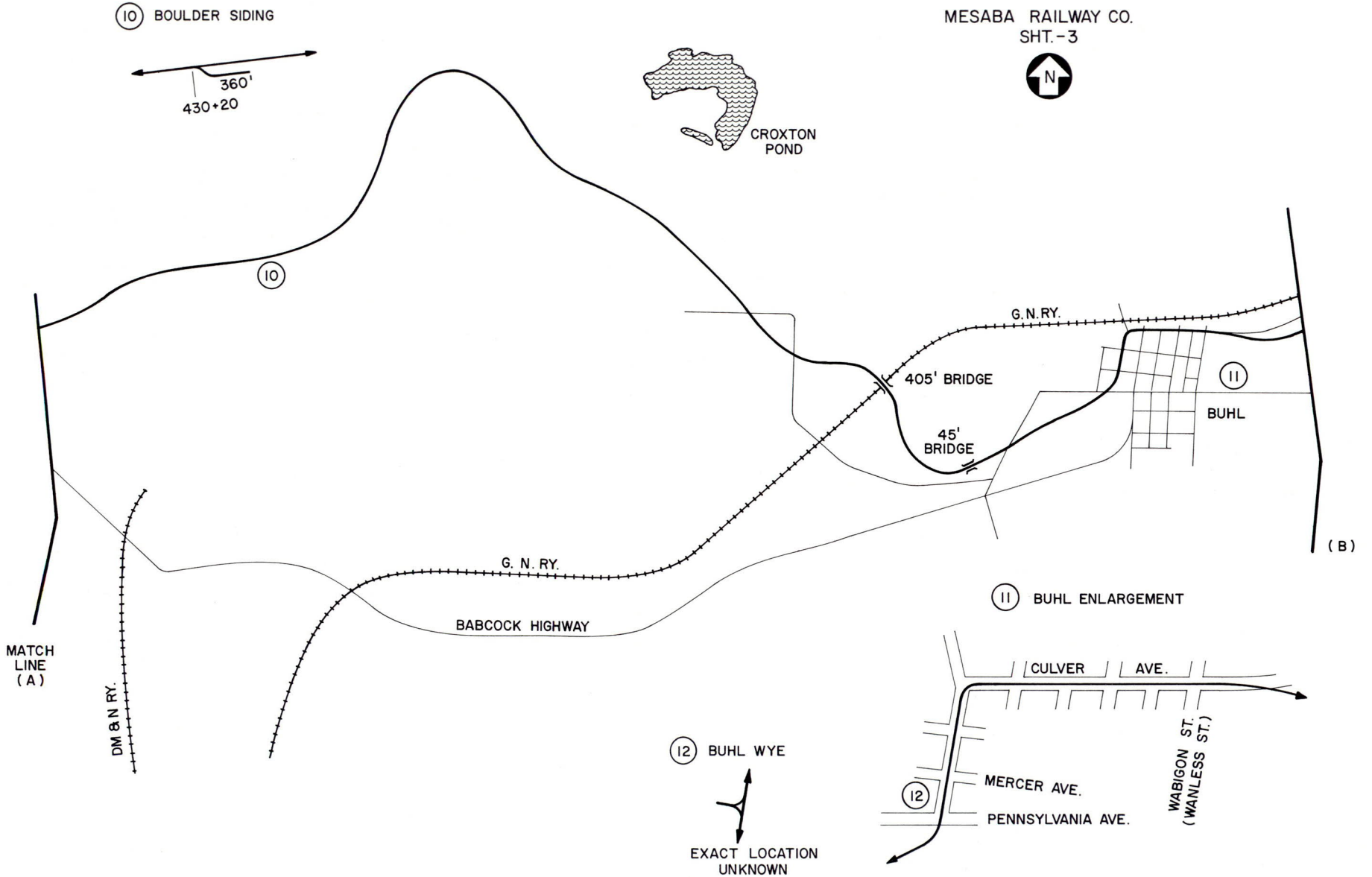
The total of the foregoing is 26,702 feet or 5.06 miles of line.

Track constructed in Hibbing during 1919-1921 on 1st Ave. from the G. N. Ry. crossing south to Alexander St., and on Howard St. from 1st Ave. east, was all paved with concrete.

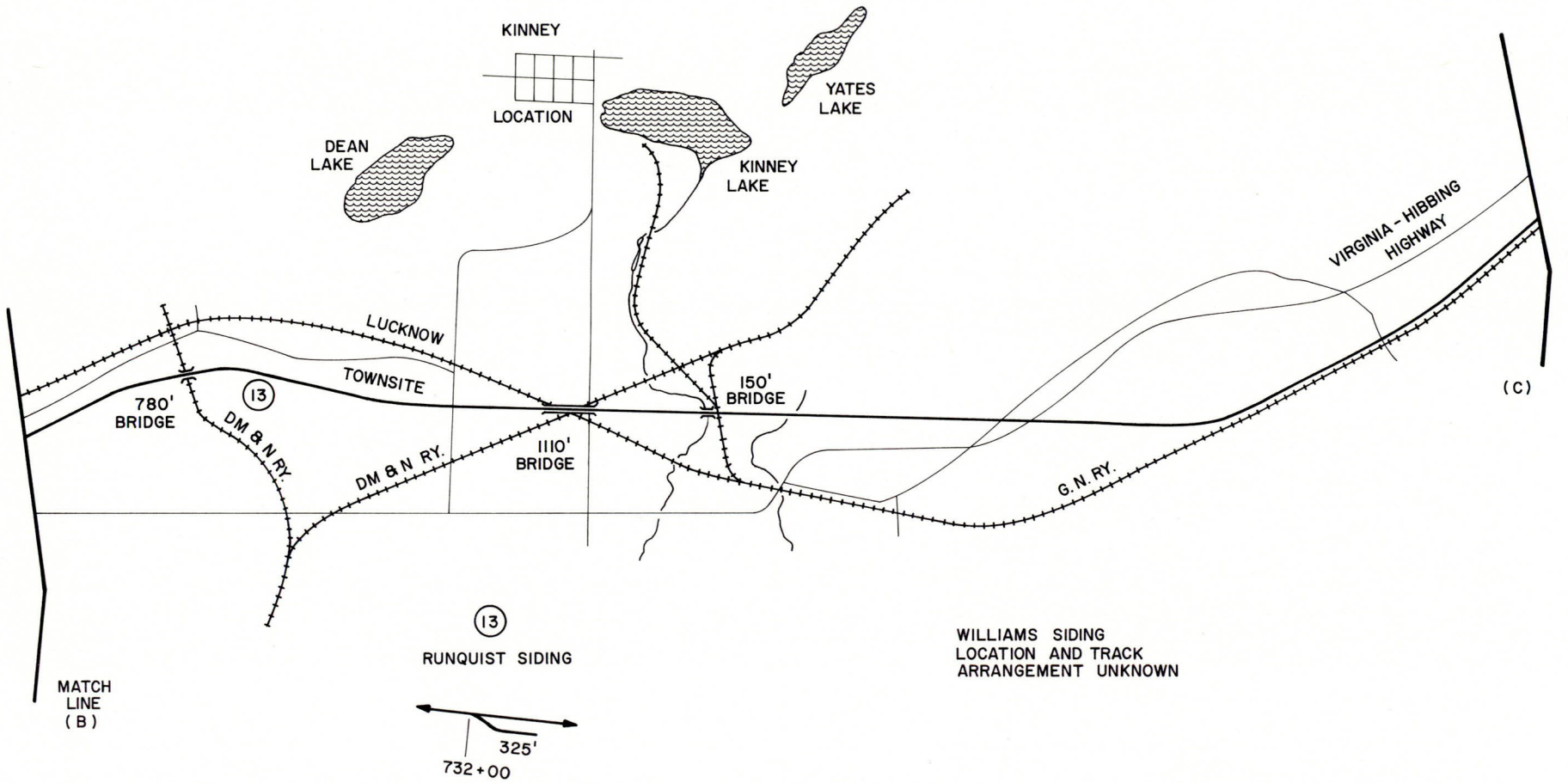
Highway grade crossings were located at:
North Hibbing
South Hibbing
Station 10 (Hibbing-Chisholm highway)
West end of Chisholm
East end of Chisholm
Station 23½ (Virginia-Hibbing highway)
West of the Virginia carhouse
Virginia-North Side
Virginia-South Side
Station 40 (Virginia-Gilbert highway)
East end of Eveleth streets
West end of Gilbert streets

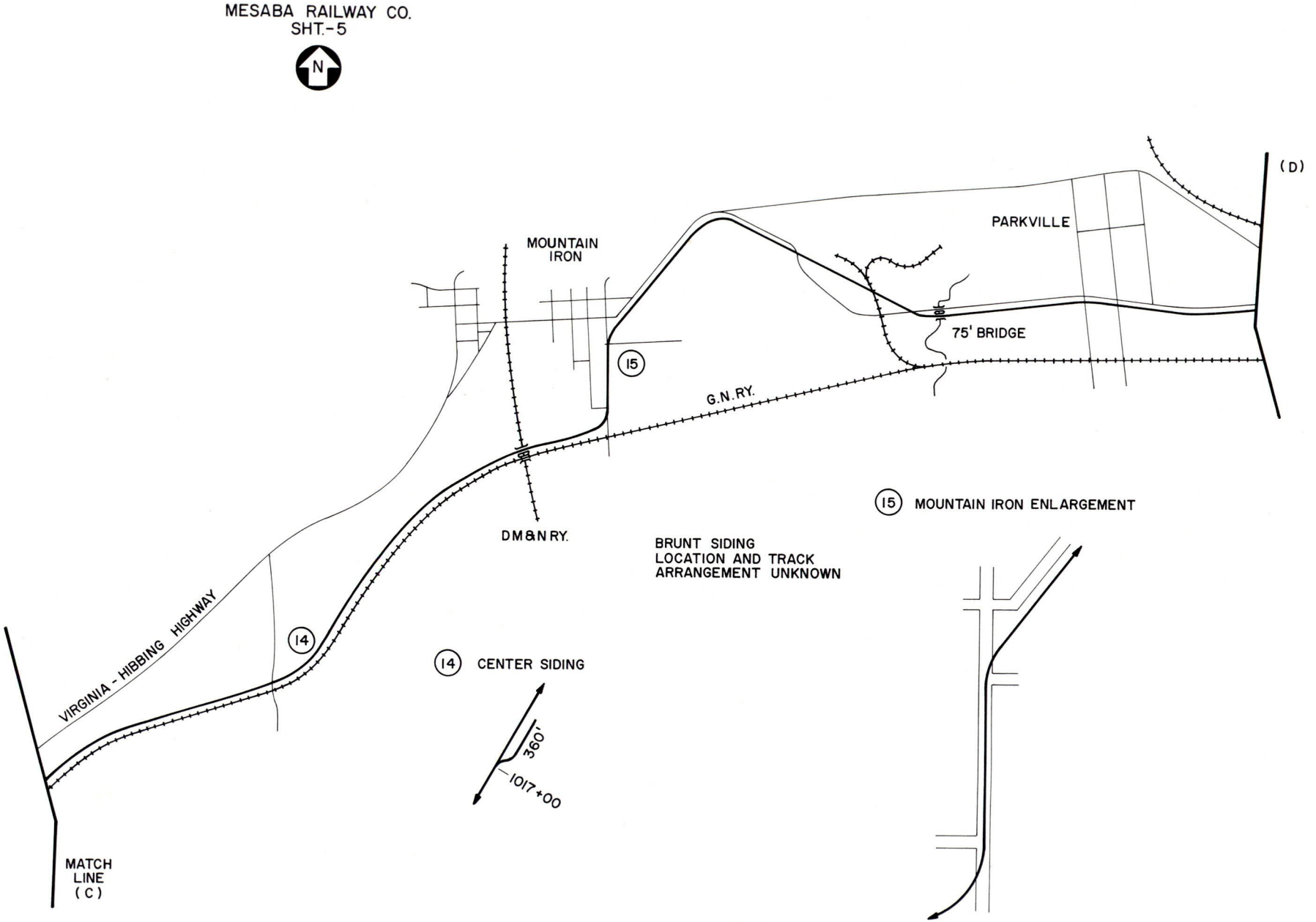

MESABA RAILWAY CO.
SHT. - 1
N
TRESTLE
1920'
9
CHISHOLM
LONGYEAR
LAKE
G.N. RY.
(A)
HIBBING - CHISHOLM ROAD
9 CHISHOLM ENLARGEMENT
1ST ST. N.W.
(CHESTNUT ST.)
W. LAKE ST.
4TH AVE.
SUBSTATION
AND WAITING
STATION
CENTRAL AVE.
(CENTER ST.)
G. N. RY.
2
LAVINIA
TOWNSITE
2 LAVINIA SIDING
1ST ST.
2ND AVE.
360'
2ND ST.
135+00
POOL
LOCATION
1ST AVE.
2ND AVE.
3RD AVE.
PINE ST.
G.N. RY.
RAILROAD ST.
HIBBING
1
McKINLEY ST.
DM & N RY.
1 HIBBING WYE
McKINLEY ST.
0+00


MESABA RAILWAY CO.
SHT. - 2
N
TO CHISHOLM
BALLAST (WEST CHISHOLM) SIDING
(ORIGINAL LINE)
GLEN MINE
3RD AVE.
6
McKINLEY ST.
END OF PAVED STREET
1ST AVE.
3
HOWARD ST.
8 GLEN SPUR SIDING LOCATION AND TRACK ARRANGEMENT UNKNOWN
KITZVILLE
1221' TRESTLE
G. N. RY. EMMERT YARDS
DM & N RY. MITCHELL YARDS
NORTH HIBBING
3RD AVE.
RAILROAD ST.
6
McKINLEY ST.
100' BRIDGE
DM & N RY.
BROOKLYN
G. N. RY.
BABCOCK HIGHWAY
7 MITCHELL - EAST HIBBING SIDING LOCATION AND TRACK ARRANGEMENT UNKNOWN
HIBBING PARK SIDING TRACK ARRANGEMENT UNKNOWN
5
BENNETT PARK
EAST HIBBING
END OF PAVED STREET
1ST AVE.
HOWARD ST.
HIBBING
3
4
ALEXANDER ST. (27TH ST.)
SOUTH HIBBING
4 HIBBING WAITING STATION
SUB-STATION
CANOPY OVER PLATFORM
FREIGHT HOUSE
TICKET OFFICE
WAITING ROOM
6TH AVE. S.
HOWARD ST.

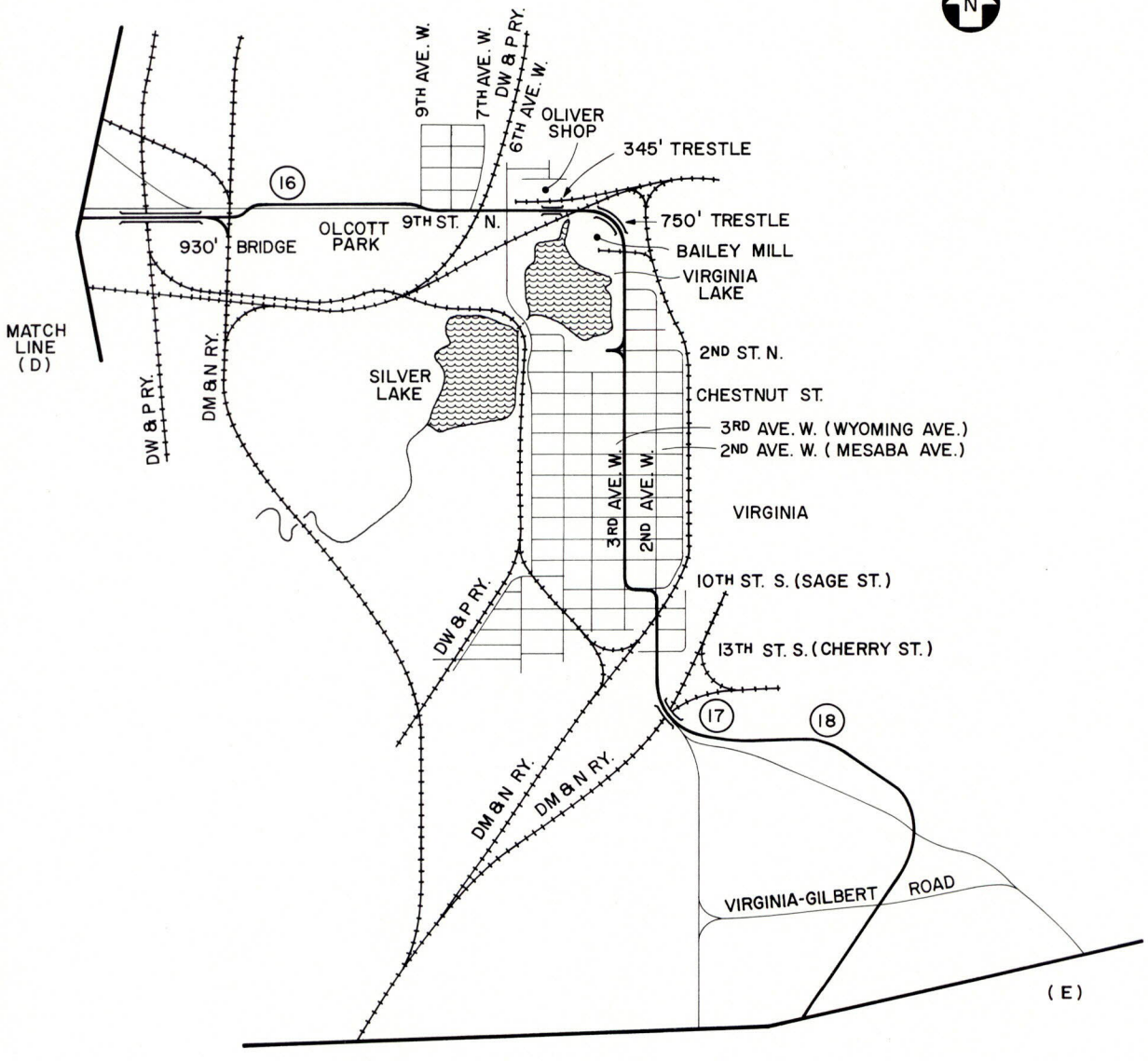

MESABA RAILWAY CO.
SHT.-3
N
(10) BOULDER SIDING
360'
430+20
CROXTON POND
(10)
G.N.RY.
405' BRIDGE
45' BRIDGE
(11)
BUHL
(B)
MATCH LINE (A)
DM & N RY.
G. N. RY.
BABCOCK HIGHWAY
(11) BUHL ENLARGEMENT
CULVER AVE.
WABIGON ST. (WANLESS ST.)
(12)
MERCER AVE.
PENNSYLVANIA AVE.
(12) BUHL WYE
EXACT LOCATION UNKNOWN

MESABA RAILWAY CO.
SHT. - 4

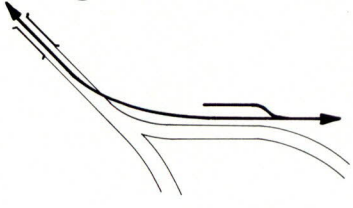



MESABA RAILWAY CO.
SHT.-5
N
(D)
PARKVILLE
MOUNTAIN IRON
75' BRIDGE
15
G.N.RY.
DM&N RY.
15 MOUNTAIN IRON ENLARGEMENT
BRUNT SIDING
LOCATION AND TRACK
ARRANGEMENT UNKNOWN
VIRGINIA - HIBBING HIGHWAY
14
14 CENTER SIDING
360'
1017+00
MATCH
LINE
(C)

MESABA RAILWAY CO.
SHT.-6

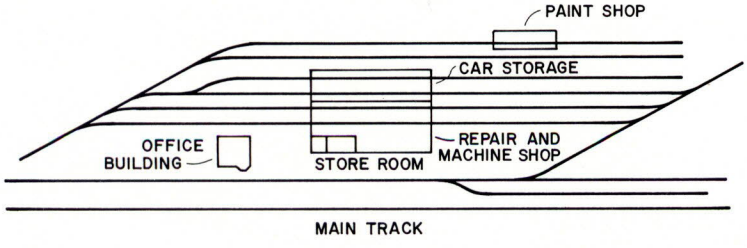


17 THOMAS SIDING - AS RELOCATED

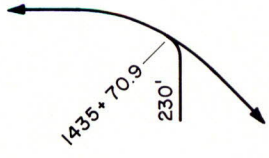


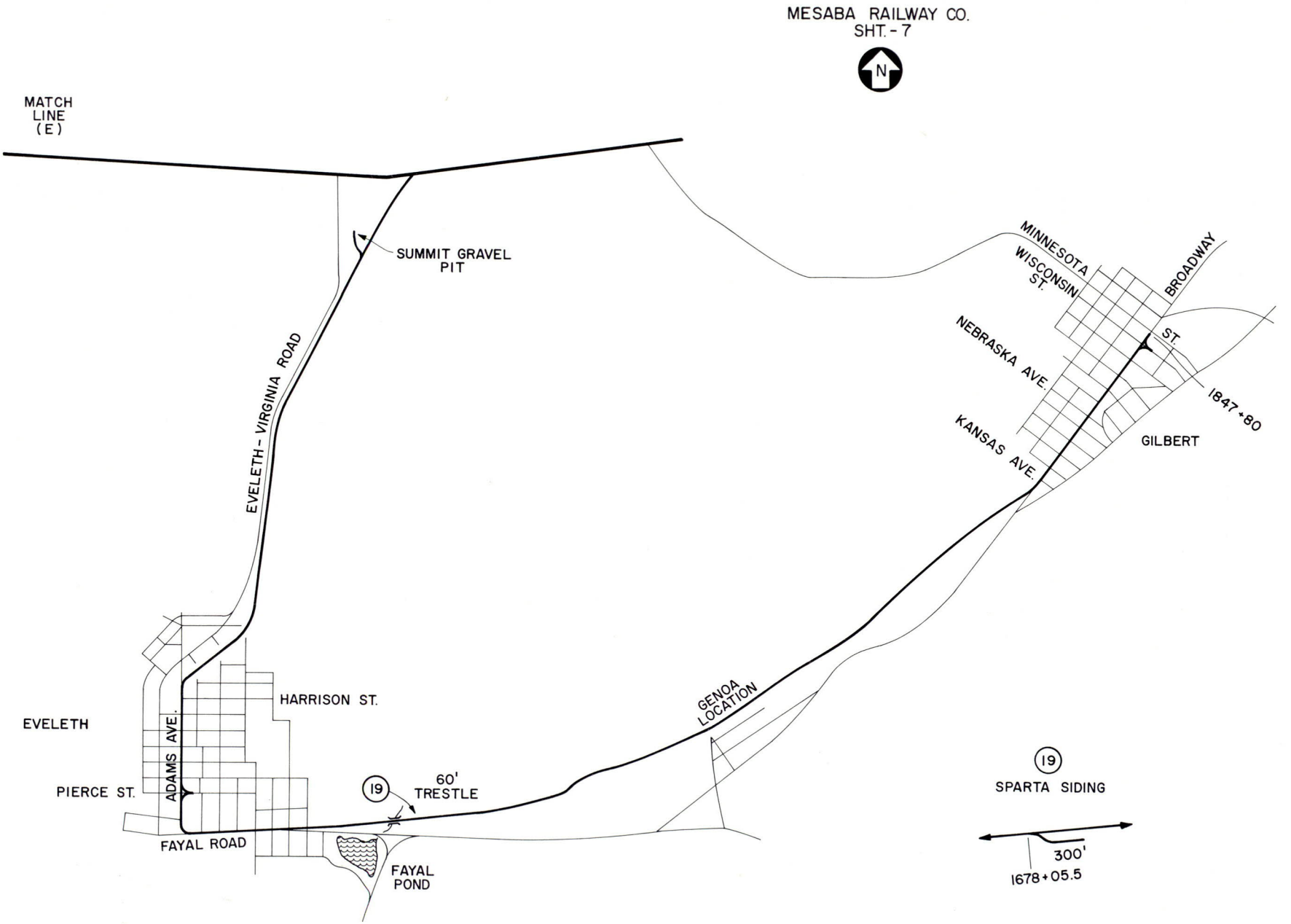
16 VIRGINIA CARHOUSE

TRACK ARRANGEMENT PROPOSED AFTER ORIGINAL CARHOUSE WAS DESTROYED BY FIRE.



18 THOMAS SIDING - ORIGINAL LOCATION




MESABA RAILWAY CO.
SHT. - 7
N
MATCH LINE (E)
SUMMIT GRAVEL PIT
EVELETH - VIRGINIA ROAD
MINNESOTA ST.
WISCONSIN ST.
BROADWAY
NEBRASKA AVE.
KANSAS AVE.
1847+80
GILBERT
EVELETH
HARRISON ST.
ADAMS AVE.
PIERCE ST.
FAYAL ROAD
19
60' TRESTLE
GENOA LOCATION
FAYAL POND
19
SPARTA SIDING
300'
1678+05.5

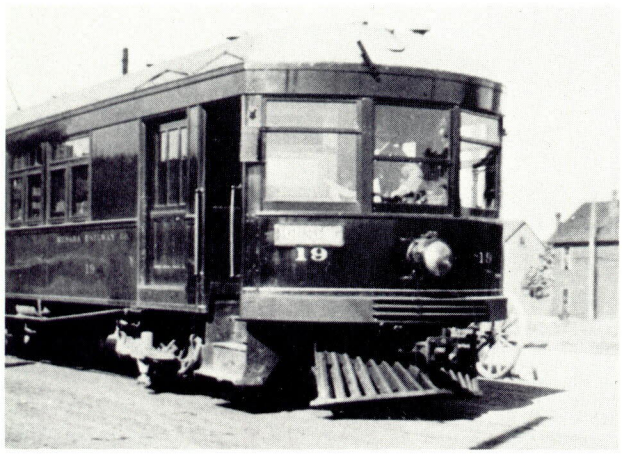
MESABA RAILWAY

GENERAL OFFICES, VIRGINIA, MINN.

10-23-1917
560

Hourly Service—Passenger Trains All Run Daily

| | | |



Note the signal contact shoe on the front truck of car 19. (Wayne C. Olsen collection)

The Simmen Signal System

At each siding were located three insulated sections of third rail, each about 75' long. One rail was opposite the switch (home rail) and one rail 2000' in each direction from the switch (distant rails). Each group of three sections was connected by one wire (the return circuit being through the track rails) to a separate control switch on the dispatcher's control board. There was one control switch for each siding.

Each motor car was equipped with a third rail contact shoe mounted on the front truck, a contact shoe relay, battery for power, and two signal lights (red and green) in the motorman's cab.

The principle of the system was that if a contact rail was energized by the closing of a control switch, then a passing train would receive a clear signal; if a contact rail was de-energized by the opening of a control switch, then a passing train would receive a stop signal. A clear signal would continue to show while running through the block; a stop signal would be displayed until the car reached an energized contact rail. The dispatcher could at any time stop any train at any siding. Opposing movements of trains at a meeting point were controlled by the two outer third rail sections of the group, and the two trains which approached the same siding received stop signals as soon as they passed these outer sections, leaving each train about 2000' in which to come to a stop. The dispatcher's control switches were interlocked so it was mechanically and electrically impossible for the dispatcher to give signals corresponding to a lap order, or to change signals once a train was in a block.

Maintenance of Way

Three sections were organized, each operating from an 8' x 10' section-car house. These three houses were located at the Chisholm waiting station, Mountain Iron, and the Virginia carhouse. Equipment consisted of three hand cars, three push cars, one heavy rail car, six track jacks (two on each section), and two wrecking cables.

Hibbing Waiting Station and Carhouse

The length of the ticket office, waiting room and freight house was 69'0½". Interior areas were: ticket office 14'4" x 8'4½", waiting room 22'3" x 21'3", two toilets (in the waiting room) 4'2" x 7'2" each, and the freight warehouse 24'7½" x 21'6". The loading platform was 8'2" wide and 50'6" long; a canopy over the platform extended the full length of the building thus measuring 8'2" x 69'0½". The width of the waiting room and carhouse was 61'2" and the length of the carhouse and substation was 85'2". The carhouse itself was 35'8" wide by 60'0" long and the substation measured 25'0" x 22'10".

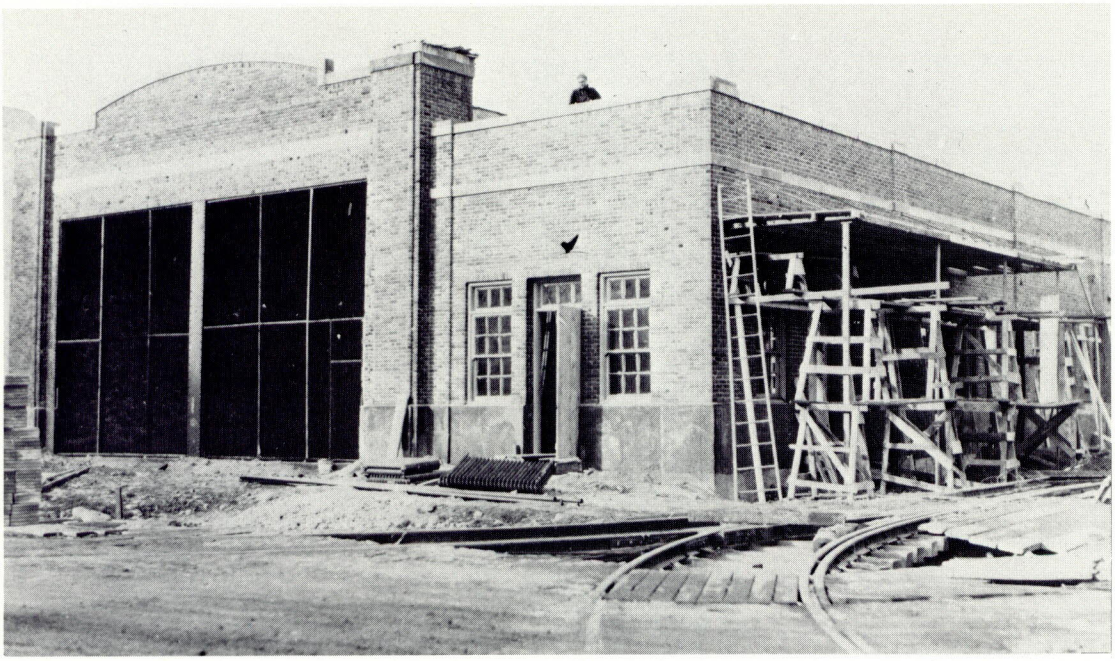
Virginia Office Building

This was a two-story structure measuring 36'0¼" x 34'10". The first floor contained the superintendent's office, dispatcher's office, trainmen's room, and battery room. The second floor contained the manager's office, auditor's office, and stenographer's office.

Virginia Carhouse

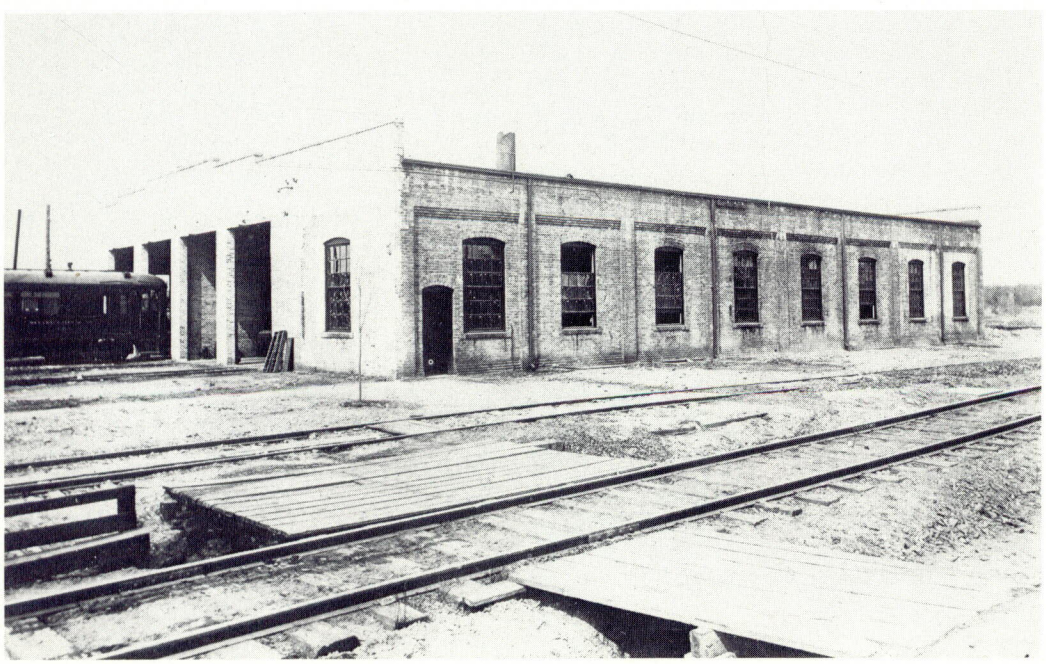
This building measured 122'2" long by 86'2" wide. The oil room (for lubricating and signal oil) was 18'5" x 16'0", and the storeroom 18'5" x 30'0". The boiler room was located underneath these two rooms, measuring 18'6" x 46'0" and contained one 50 h.p. Ordway Eclipse return fire-tube stationary boiler for heating. The machine shop area measured 25' x 75' and included one General Electric 25 h.p. 440 volt induction motor for powering the shop equipment line shaft, the master mechanic's office 10'0" x 14'0", and the machine shop 18'6" x 62'0". Tracks 1 and 2 contained inspection pits on the west end, and repair pits on the east end; the hydraulic car lift was located in the repair pit on track 2. Tracks 3 and 4 were for car storage only, being separated from tracks 1 and 2 by a wall. Shop machinery consisted of the following:

one Westinghouse air compressor
one Carbic welding and cutting torch
one Canton floor crane
one hydraulic pit jack
two 8-ton Yale & Towne chain hoists
(for lifting car bodies)
one chain hoist for transferring
wheels from press to lathe
one wheel transfer truck
one armature baking oven
one #3 Buffalo forge and exhaust fan
one woodworking lathe
one Crescent 1016 wood planer
one Crescent 26" band saw
one Crescent circular saw and table
one Hannan & Finton 21" swing, 9' lathe
one Seyferts & Sons 40" lathe
one 300-ton hydraulic wheel press
one J.E. Snyder drill press
one William Sellers steel planer
one #2 Marvel draw cut saw (power hack saw)
one 12" emery wheel and stand
one whetstone (grindstone)



The carhouse-waiting station-substation building at 6th Ave. and Howard St., Hibbing, nearing completion, December 11, 1921. (Oliver Iron Mining Co.; Wayne C. Olsen collection)

The original carhouse and office buildings at Virginia nearing completion in February, 1913. (Wayne C. Olsen collection)



The rebuilt carhouse building at Virginia as it appeared in later years. The office building is out of the photograph to the left. (Jay O. Bergerson collection; St. Louis County Historical Society)

Passenger motor car 10 turning on the Virginia wye. The pilot has been covered with steel plate for snow plowing purposes, and advertising revenue has been solicited from the competition. (Russell Olson collection)

Equipment

Passenger Motor Cars 10-11 and 13-14

Construction Details

Length over buffers: 49'0"; length over vestibules 47'2"; length of car body: 37'0"; length of passenger compartment: 25'7"; length of smoking compartment: 11'5"; length of vestibules: 5'0" each; and outside width 9'4". The underframe was of yellow pine, reinforced with two 6" I beams under the platforms, ½" x 5" steel plates in the center sills and two ⅝" x 7¾" steel plates in the side sills; with under and inside truss rods, 8" buffer plates and Hedby anti-climbers. Bodies had double maple floors, double side walls sheathed outside with ⅛" x 34" steel plate and removable storm sash for the windows. Each side of the body at the rear end and the right side at the front end were fitted with Edwards Type 4V 31" single swing-doors, steel trap door and triple steps with safety treads.

Electrical and Mechanical Details

Designed for local and interurban service with medium speed and frequent stops. Maximum speed was about 45 m.p.h. Baldwin 78-22-A trucks (36" cold-rolled steel wheels), four General Electric 201H (60 h.p.) motors, and one K-35-G controller. Westinghouse combination automatic and straight air brake system with D-2 air compressor. Tomlinson Auto-Radial couplers. Trailer air connections, light and heating cable connections were at rear of each car. Weight of the entire car complete was 48,400 lbs.

Other Details

Because a large percentage of the passengers were mine workers with soiled clothing, the interior finish was of dark oak with light blue ceiling. Hale & Kilburn rattan seats with fixed backs seated a total of 50 persons.

Toilet with dry hopper located in passenger compartment.

Peter Smith hot water heater was located in the front vestibule with all-steel coal bunker alongside.

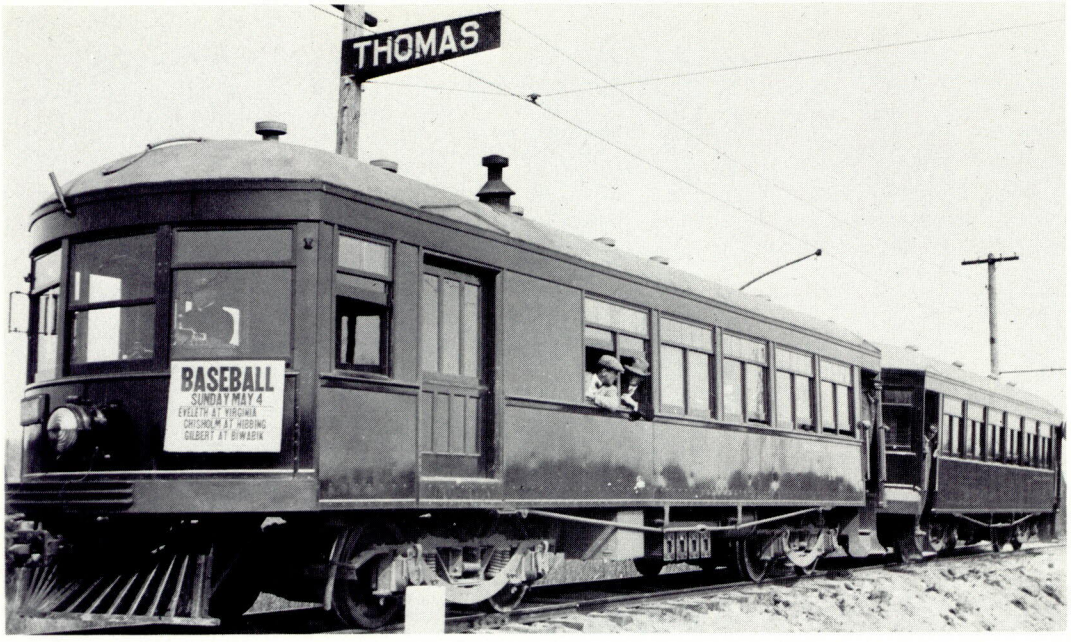
Ohmer fare register was located in the passenger compartment.

Union Standard Type U.S. 13 trolley base, 14' Shelby Style "A" pole, 6" diameter trolley wheel, and Knutson #5 catcher-retriever.

During 1920 or 1921 car 11 was rebuilt for double end, one or two man operation, in either city or interurban service.

Passenger-Baggage Motor Cars 12 and 15-19

Details are identical to those listed for the passenger motor cars except for the following differences. Length of front vestibule and baggage compartment: 9'6"; length of smoking compartment 9'8"; length of passenger compartment: 23'0"; and length of rear vestibule: 5'0". Each side of the baggage compartment was fitted with a 3'6" sliding door. Seating capacity was 44 persons. Peter Smith heater was located in the baggage compartment.

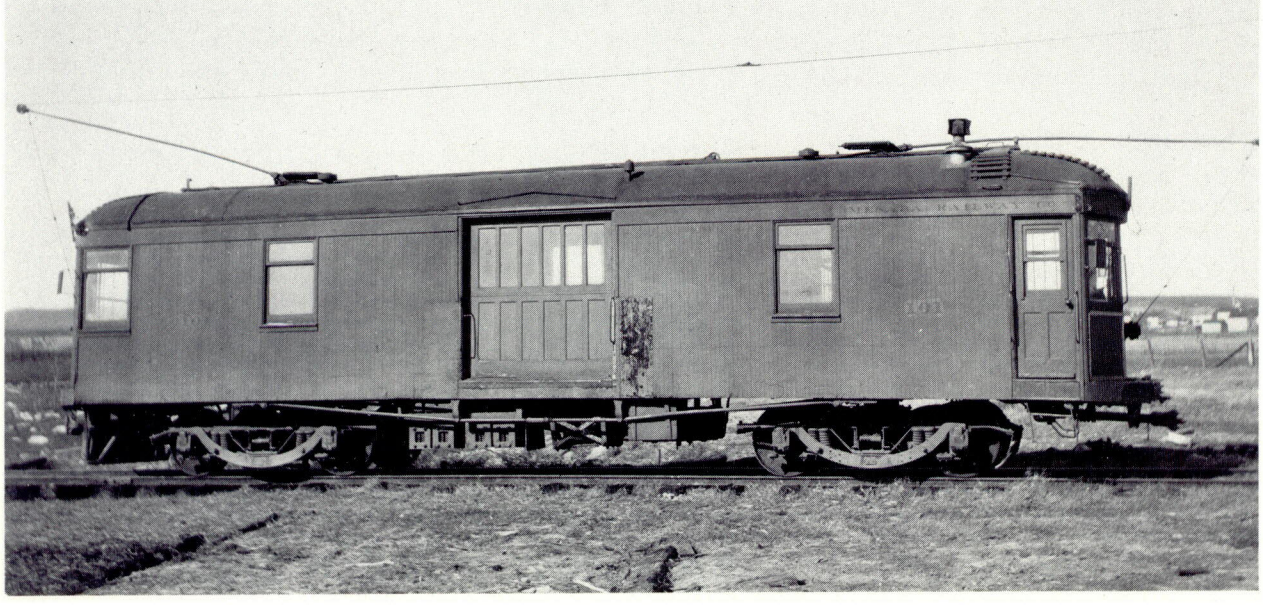


Passenger-baggage motor car 19 with passenger trailer 2 westbound at Thomas siding, 1913.

The same train in the foregoing photograph leaving Thomas siding after meeting the eastbound train. Note the white-painted clearance post between the main track and the siding, and the telephone booth to the far right.

(Both photographs Alex Ellison; Wayne C. Olsen collection)

Express motor car 101 at the Virginia carhouse after the end of operations in 1927. (Mesaba Ry.; Wayne C. Olsen collection)



Passenger Trailers 1-4

Construction Details

Cars were designed for double end operation with two compartments, passenger and smoking. Length over buffers: 45'0"; outside width 9'4". Underframe construction was identical to that used on the passenger motor cars. Each corner of each end had Edwards 31" single swing-doors, steel trap and triple steps. Each end bulkhead had a 30" single swing-door and the smoking compartment bulkhead had a 23" single swing-door. Other details are also identical to the passenger motor cars.

Mechanical Details

Baldwin 78-22-A trucks; Westinghouse air brakes, Tomlinson Auto-Radial couplers, and air, light and heating cable connections at each end. Weight complete was about 18 tons.

Other Details

Hale & Kilburn reversible back rattan seats, toilet with dry hopper located in the passenger compartment, Ohmer fare register, and Consolidated electric car heaters.

Freight-Express Motor Cars 101-102

Construction Details

Length over buffers: 46'0"; length over body; 43'4"; inside length for freight: 35'0". The underframe was constructed of yellow pine reinforced with two 6" steel I beams in the center sills and two ⅝" x 7¾" steel plates in the side sills. The body had 1¾" hard maple plank floor, 6'0" sliding freight door in each side, swing-door in each end for loading long articles, and motorman's swing-door in right side of each end. A 5-ton chain hoist and boom was provided for picking up heavy freight from station platforms.

Electrical and Mechanical Details

Baldwin 78-22-A trucks, four General Electric 201H motors, and two K-35-G controllers for double end operation. Westinghouse combination straight and automatic air brakes. Weight of the car complete was about 27 tons.

Passenger Trailer 5

Construction Details

Built by the McGuire-Cummings Mfg. Co. at an unknown date. Length over buffers: 50'2"; length of passenger compartment, 25'0"; length of smoking compartment: 15'0"; and length of vestibules: 5'0" each. Edwards trap doors were used.

Mechanical Details

McGuire MC 101 trucks, Westinghouse Type AMM air brake system, and Tomlinson Auto-Radial couplers.

Other Details

Seating capacity 56 persons, one dry hopper toilet, Ohmer fare register, and Consolidated electric car heaters.

Passenger Trailer 6

Construction Details

Built by the Pullman Company, Detroit, Mich., at an unknown date. Length over buffers: 50'6"; length of passenger compartment: 39'0"; and length of open end platforms: 4'0" each.

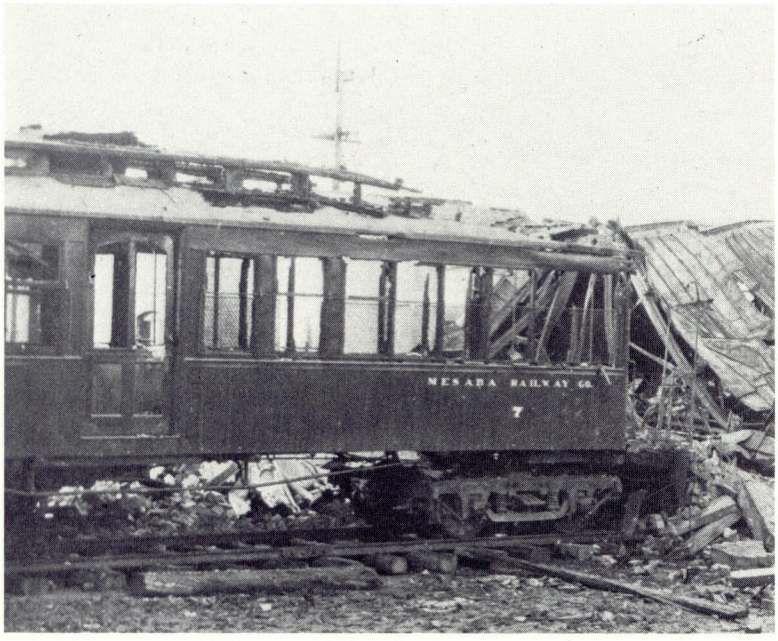
Mechanical Details

McGuire-Cummings MC 101 trucks and Westinghouse Type AMM air brake system.

Other Details

Seating capacity was 46 persons with the passenger compartment being equipped with longitudinal sectional seats.

Ruins of the Virginia carhouse after the November, 1913, fire; part of passenger trailer 6 is visible to the right. (Wayne C. Olsen collection)



Above: The remains of passenger trailer 7 after the Virginia carhouse fire.

Below: Car 33 at the east end of the Virginia carhouse after service ceased in 1927. Note the car had been converted to one-man operation. (Mesaba Ry.)

(Both photographs Wayne C. Olsen collection)

Passenger Trailer 7

No details were provided on this car which was destroyed in the carhouse fire of November, 1913.

Line Car-Snow Plow 99

Construction Details

Length: 33' or 38'; width: 7'6". Equipped for double end operation with manual and air-operated snow plows.

Mechanical Details

Four General Electric 201H motors, Westinghouse Type AMM air brake system, and Tomlinson couplers.

Work Flat Motor Cars 200-201

Construction Details

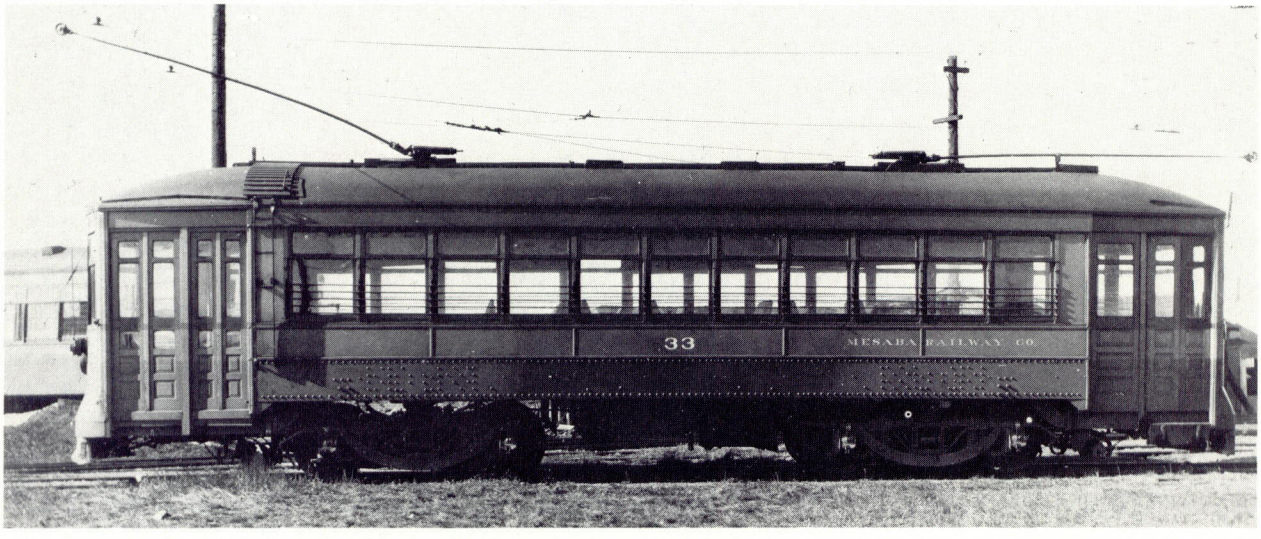
Length over buffers: 40'10"; width: 9'6".

Mechanical Details

Baldwin 78-22-A trucks, and Westinghouse air brakes for train service. Maximum load was about 48,000 lbs.

Dump Trailers

A number of four-wheel side-dump trailers, apparently mine earth-stripping cars, were acquired second-hand for use in constructing the railway. All weighed 3,800 lbs. each. The quantity was reported at various times as 11, 12 or 13 cars. All were ordered scrapped in December, 1917, but continued to be listed in equipment reports until 1924.



City Passenger Motor Cars 32-33

These two cars were purchased in 1921 from the Washington-Virginia Ry. of Washington, D.C. They were originally built by the McGuire-Cummings Mfg. Co. in 1917 and were of a group of three cars acquired second-hand by the W-V Ry. in late 1918 numbered 31-33. Mesaba Ry. acquired the bodies of cars 32-33 and retained those numbers.

Construction Details

Length over buffers: 45'0"; length of passenger compartment: 31'0"; length of vestibules: 6'0" each; and width: 8'8". Bodies were sheathed on the outside with ⅛" steel plate and were provided with storm sash. Doors and folding steps were manually operated.

Electrical and Mechanical Details

Baldwin 78-22-A trucks, four General Electric 201 motors, two K-35-G controllers for double end operation, and Westinghouse straight air brakes with a D-2-ET compressor. Weight complete was about 25 tons.

Other Details

Seating capacity was 40 persons. Cleveland fare boxes and International fare registers were both used. Consolidated car heaters were located under the seats and in both vestibules with double coil panel heaters under the longitudinal seats.

Disposition of Equipment

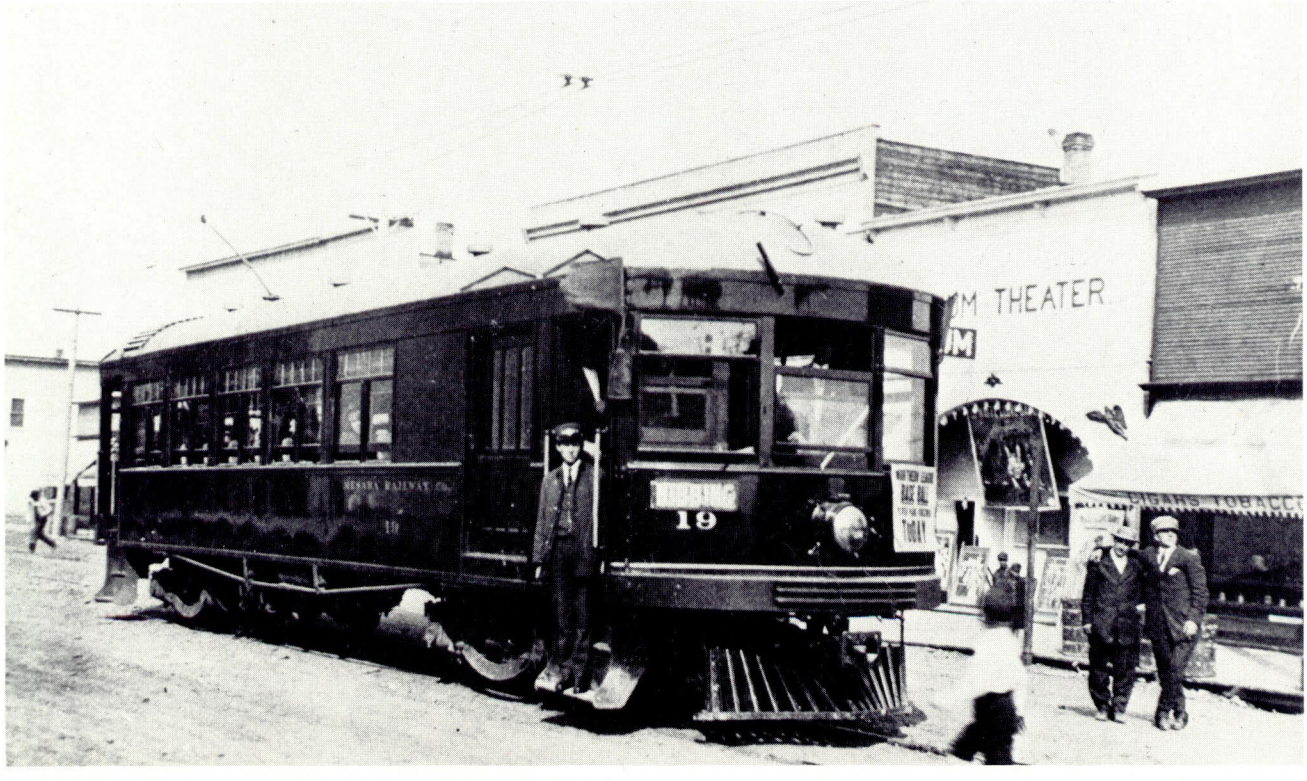
In May, 1925, two of the passenger-baggage motor cars were badly damaged in a head-on collision between Virginia and Eveleth. They were never repaired and finally scrapped in 1926.

After the end of rail operations in 1927 the company tried to sell the remaining cars to other railways, including Duluth St. Ry., but was unsuccessful. The trucks and motors (and presumably other electrical and mechanical equipment) were sold for scrap. Some of the carbodies were sold for various uses while the others were destroyed.

Above: Car 19 on Broadway at the Gilbert wye, ready to depart for Hibbing. The waiting station is in the frame building adjacent to the Lyceum Theater.

Below: Another view of car 19 loading passengers from the street in front of the Gilbert waiting station.

(Both photographs Wayne C. Olsen collection)



Minneapolis, Anoka & Cuyuna Range Ry. passenger car 1 at the company's Anoka depot about 1917. (Minnesota Historical Society collection)

2. MINNEAPOLIS, ANOKA & CUYUNA RANGE R.R.

Minneapolis to Anoka, Minn.

Located at the junction of the Mississippi and Rum Rivers, Anoka was established in the 1840's as a fur trading site; by the 1860's it had become an important lumber milling town. The St. Paul & Pacific R.R. completed the first portion of its line to St. Cloud this far in 1864. Flour milling also became an important industry and remained so for many years. There were many proposals to connect Anoka and Minneapolis with something other than the steam railroads. All of these proposals involved constructing a line on the west side of the Mississippi River, from as far east as Camden Place to as far west as Robbinsdale and Osseo. (In 1906 auto buses of the Anoka & Minneapolis Transportation Co. were operating five round trips per day from Washington and Hennepin Avenues in Minneapolis to Anoka.) Municipal opposition prevented actual construction.

Minneapolis & Northern Ry.

Attention shifted to the east side of the Mississippi River which was sandier and less fertile, and consequently less populated. The Anoka-Minneapolis Suburban Ry. was incorporated in March, 1909, and succeeded in securing some franchises. The Minneapolis & Northern Railway was incorporated in Maine during 1912; in July of that year it acquired all of the franchises of the A-M S Ry. and was authorized to do business within Minnesota in August. The M & N Ry. was able to secure sufficient funds to begin construction of the line; J.L. Weaver of Anoka began grading from Fridley with several teams. Right-of-way through Fridley, Coon Rapids and Anoka was completely secured by December, 1912. Bridges were under construction over Rice Creek, Hoyt's Creek and Coon Creek. It was reported that due to the unavailability of electricity a decision had been made to use gasoline-mechanical passenger motor cars. Construction of the 14.74 mile line was completed May 30, 1913, at a cost of $457,894.53. Trackage rights of .65 miles were obtained over the Soo Line Ry. from a connection at 34th Ave. N.E. and Marshall St. to 42nd Ave. N. and Washington Ave. N. (Camden Place), all in Minneapolis. One record stated freight service was begun January 25, 1913, between 34th Ave. N.E., Minneapolis, and Coon Rapids to aid in building the Coon Creek dam, using a small steam locomotive.

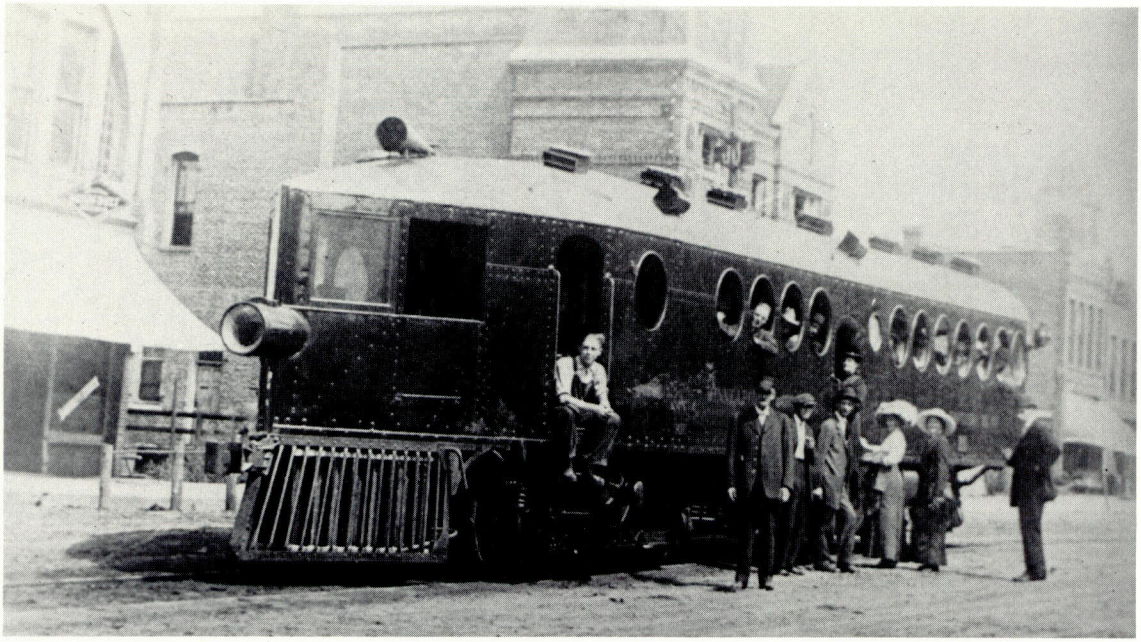
The first passenger motor car arrived in Minneapolis on May 14, 1913. The design selected was that of the McKeen Motor Car Co. of Omaha, Nebraska. This type of car had been developed by Wm. R. McKeen, Jr., Superintendent of Motive Power for the Union Pacific R.R. in 1905. During that year he designed and built a gasoline-mechanical passenger motor car in the railroad's Omaha

shops. As a result a number of these cars were built in the following three years and used to replace steam powered trains on lightly traveled branch lines of the U. P. R.R. In 1908, E.H. Harriman, who controlled both the Union Pacific and Southern Pacific Railroads, financed the McKeen Motor Car Co. and commercial production for other railroads was begun in an old shop building in Omaha. The distinctive features of the design were: (1) all steel body with pointed front end, round rear end, porthole windows and center entrances; (2) 200 h.p. marine type gasoline engine mounted crosswise on the front truck with a big flywheel protruding beyond the left side truck frame; (3) engine geared only to the front axle which had 42" diameter wheels, the rear axle of the front truck having 33" diameter wheels; and (4) chain drive, air clutch, and two speed (low-high) transmission. There was no reverse gear. To back up it was necessary to stop the engine, manually shift the camshaft by means of a lever on the sliding camshaft, and re-start the engine in the opposite direction.

The M & N Ry. purchased two 55' long passenger motor cars in 1913 at a total cost of $38,791.76 and named them "Minneapolis" and "Anoka".

The line was opened for regular service on June 10, 1913; a celebration was held the next day at which officials of Minneapolis, Anoka and the M & N Ry. attended. The population of Anoka at this time was 3,972 persons. The fare was 2 cents per mile or 30 cents total, one-way. The first regular schedule operated was: Leave Anoka: 7:00 and 11:00 A.M.; 1:00, 4:00 and 7:00 P.M.; and Leave Minneapolis: 8:00 and 11:00 A.M.; 2:10, 4:00 and 11:30 P.M.

The schedule effective June 25, 1913, was considerably expanded: Leave Anoka: 7:00 A.M., 9:30 A.M., 1:00 P.M., 4:00 P.M., 7:00 P.M., and 9:15 P.M. Daily; 11:00 A.M. 2:10 P.M., 3:00 P.M., and 5:00 P.M. Sundays only; and Leave Minneapolis: 8:00 A.M., 11:00 A.M., 2:10 P.M., 6:00 P.M., 8:00 P.M. and 11:30 P.M. Daily; 9:30 A.M., 1:00 P.M., 3:00 P.M., 5:00 P.M., and 7:00 P.M. Sundays only.



Minneapolis & Northern Ry. McKeen passenger motor car "Minneapolis" on Main St., Anoka, 1913. (Joe Hutchinson collection)

During July, 1913, it was reported that construction had started on the first shop building, 30' x 40' frame construction, on 7th Ave. and Main St. at the Anoka wye. During July and August the Davis Block on Main St. in Anoka was being remodeled for use as a depot; a new glass front, hardwood floors, counter and railing, ladies' restroom and toilet in the rear portion, and men's washroom to the left of the building were being installed.

The line was also attempting to encourage and develop freight traffic. In July, 1913, it was announced that a siding was to be constructed at the Anoka wye for freight service. For the planned freight operations a gasoline-mechanical freight motor car was acquired from the McKeen Motor Car Co. at a cost of $18,767.10; it arrived in Anoka on a Tuesday in July, 1913, a rather unusual piece of equipment: Length 49'0", width 9'8", weight 56,000 lbs., freight compartment capacity 30,000 lbs., one 200 h.p. McKeen splash feed engine with 6 cylinders and 10" x 12" stroke, multiple disc clutch, automatic air brakes, all steel cast frame, 16'0" wheelbase, pulling capacity 400 tons; and the body equipped with pointed front end, open rear platform, and square windows at intervals so that during periods of heavy passenger traffic removable seats and chairs could be installed for transporting passengers.

With the acquisition of this car the M & N Ry. earned the notable distinction of being the first railroad in the U.S. operating both freight and passenger service exclusively with McKeen Motor Car Co. equipment. During October a freight car was fitted up at the Anoka wye for the use of potato buyers. On December 26, 1913, it was announced that arrangements had been completed to haul freight from the Soo Line freight depot in Minneapolis to the Anoka wye. M & N also built a spur track to the construction site of the Coon Rapids Dam, a 2200' wide structure across the Mississippi River being built during 1913-1914 by the Northern Mississippi Power Co.; 500 workmen were engaged on the $1,400,000 project which provided M & N with considerable passenger traffic and some freight traffic as well.

Offices of the M & N were originally located at 839 Metropolitan Life Building in Minneapolis but were moved in 1913 to 3900 Washington Ave. N. near the Camden Place terminal. Fred H. Hunter succeeded R.F. Malone as Vice President and General Manager in October, 1913.

Advertising promoted the "East Shore Country" (open dairy farmland) through which the line ran and "the smokeless, sootless route to Minneapolis, the only one of its kind with all-steel cars finished in mahogany". Some trips were added to the schedule in September, some dropped in October, and then drastically cutback in November. The local newspaper reported that the M & N was hardly living up to expectations.

The McKeen passenger motor cars were reported as being fast and roomy, but the sway of the rear end on the bumpy and crooked track made many people uncomfortable. The strain of the powerful engine and heavy car combined with the shocks transmitted from the uneven and rough track proved too much for the clutch, creating no end of mechanical trouble. The engines soon proved extremely difficult to start in the cold Minnesota winter weather. Engine cooling coils were mounted under the floor and tended to freeze easily when cars were stored outside in cold weather. A master mechanic and three helpers were employed at the shop in Anoka. Newspaper articles indicate the trying times experienced by the struggling little railroad: 2,000 to 3,000 gallons of gasoline were lost one night due to a leak in the newly installed storage tank; Clifford Seagar of Omaha was back *again* in

Anoka to overhaul the freight engine; on Friday, January 16, 1914, the 1:00 P.M. train from Anoka was wrecked about 1:15 P.M. at Gibb's farm just beyond Power's station, about 3 miles from Anoka. The gasoline freight motor car was pulling a rented Soo Line passenger coach as *both* passenger motor cars were out of service at the time. Owing to the freight motor's short wheelbase it was not sufficiently stable to handle heavy loads and acted like a rocking horse at the least provocation. The company was dissatisfied with it but as no other cars were available its use was necessary. Just east of the driveway at the farm, the motor car began to buck and kick; within 100' it left the track entirely, dived into the ditch on the north side of the track, stopped at a right angle to the track and tipped over on its side. The passenger coach remained on the track, coasting about a block before it stopped; the coupler had pulled out damaging the front platform. The twelve passengers (one source reported 30) were uninjured. A Soo Line steam locomotive hauled the coach to Minneapolis.

Financial troubles came almost immediately. The tightness of the bond market prevented the M & N from selling its bonds; as a result contractors' claims could not be paid. The death of J.F. O'Neil, general contractor for construction of the line, compounded the financial complications. On January 26, 1914, the property was sold at an auction sale conducted by the Anoka County sheriff at the courthouse.

Trustees for the creditors were the successful bidders for the property at $74,766.33. President George Heaton and Vice President F.H. Hunter stated that as soon as the bonds could be sold the company would be redeemed from the trustees; in the meantime it would be operated as usual.

Optimism continued to prevail. On February 10, 1914, it was announced that an extension of the line northward to Ogilvie (60 miles) in Kanabec County as well as to points along the northwest shore of Lake Mille Lacs was being planned. The new company was listed as the Minneapolis, Mille Lacs & Northern Ry. with F.H. Hunter as the Vice President and General Manager. It was reported that an office was opened in St. Francis and that Marshall Roy, a Soo Line Ry. engineer was surveying the route. It was rumored that a small amount of grading was done in or near Anoka but nothing more was heard of the scheme.

The typical passenger schedule operated during 1914 was as follows:

Leave Anoka: 7:50 A.M., 10:00 A.M., 1:00 P.M., 3:00 P.M., and 5:00 P.M. Daily; 7:00 P.M. and 11:00 P.M. Saturdays and Sundays only.

Leave Minneapolis: 8:50 A.M., 11:00 A.M., 2:00 P.M., 4:00 P.M. and 6:00 P.M. Daily; 8:00 P.M. and 12:10 P.M. Saturdays and Sundays only.

The track mileage as of June 30, 1914, was listed as: first track 14.74 miles, sidings 2.09 miles, total track 16.83 miles. Soo Line Ry. trackage rights were .65 miles.

A December, 1914, issue of the Anoka newspaper, discussing the line's problems, claimed that the passenger motor cars were the main source of trouble, actually refusing to operate. It was impossible to run trains on time and often not at all. In self defense citizens had been compelled to use the steam railroads to reach their destinations. The officers of the M & N were held blameless; it was said that they had put forth every effort to accommodate the public. Finally on January 1, 1915, the M & N was forced into receivership. The trackage agreement with the Soo Line Ry. was to expire within a week and the contractors' liens were due on January 26th. Application was made to the Minnesota Railroad and Warehouse Commission to discontinue operations for the winter but permission was received to suspend operations for only 30 days. Consequently on January 26, 1915, the line became the property of the lienholders. Charles P. Bratnober purchased the equity of the other lienholders and became sole owner.

Minneapolis Anoka & Cuyuna Range Ry.

On February 12, 1915, Mr. Bratnober together with several officials of the M & N Ry. incorporated the Minneapolis, Anoka & Cuyuna Range Ry. Co.; on March 3rd the M A & CR acquired the M & N Ry. from Mr. Bratnober. It was announced that within the next year the company expected to extend the line to the Cuyuna Range iron ore deposits. The first shipments of iron ore from this range, located near Crosby-Ironton, Minnesota, had been made during 1911.

As the financial difficulties of the M & N Ry. had resulted in lack of maintenance to the roadway, work began on rehabilitating the track with hopes of being able to electrify the line thereby operating streetcars over the Minneapolis St. Ry. into downtown Minneapolis. With completion of the Coon Rapids Dam a source of electricity was available. The goal set for electrification was April 1, 1915, but it was soon learned that this was unrealistic. In order to retain title to certain portions of the right-of-way it was found necessary to restore operations promptly. As all three gasoline-mechanical motor cars had been repossessed by the McKeen Motor Car Co. because they had not been paid for, a used steam locomotive and one passenger coach were purchased. A water tank and coal storage bin were installed at the Anoka wye.

The steam locomotive was acquired from the Chicago, St. Paul, Minneapolis & Omaha Ry. and given the number 1. Purchase price was $922.99. It had been built by the Baldwin Locomotive Works in 1881. Weight on drivers was 48,600 lbs., steam pressure 140 p.s.i, pulling capacity 500 tons, and tender capacity 6 tons of coal and 2500 gallons of water.

Steam operations began on April 6, 1915, with five daily round trips being operated. Because of Anoka ordinances the steam locomotive could not operate on city streets; apparently this also precluded use of the wye, or

perhaps the curvature radius was too short for the locomotive, for the train ran forward to Minneapolis and backward to Anoka. Passengers had to walk "downtown" from the wye at 7th Ave. and Main St. in Anoka. Presumably the train operated over the Soo Line Ry. trackage to Camden Place. Track mileage as of June 30, 1915, was listed as: Minneapolis to Anoka 14.23 miles, spur to Coon Rapids dam (Minneapolis General Electric Co.) .80 mile, sidings 1.27 miles, carhouse track .15 mile, and total track 16.45 miles.

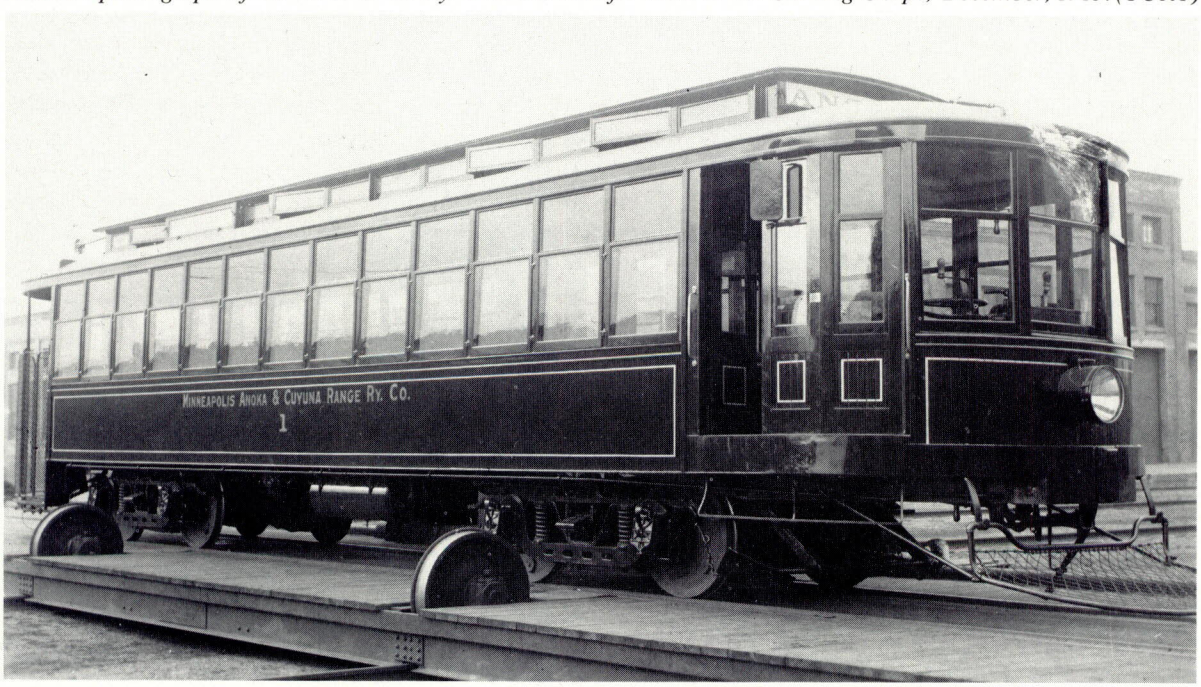
Erection of the overhead trolley wire began during the summer of 1915. Construction of the track connection with the "2nd St. N.E." line of Minneapolis St. Ry. was begun; this ran from the Soo Line Ry. connection at 34th Ave. N.E. and Marshall St., alongside Marshall St. to 30th Ave. N.E. and on 30th to the MSR wye at 30th and Grand St. N.E. MSR installed a crossover between its double track on Grand St. The MSR connection was .70 mile long. It was announced that the electrification planned for two hour service on weekdays and one hour service on Sundays from 6:00 A.M. to midnight; maximum speed would be 30 m.p.h., an average of four stops per mile would be made, and two passenger cars would be used in normal operation with a third car available for extra service.

The last steam passenger operation took place on Friday, October 8, 1915. The electric cars began running Saturday, October 9th, the regular service being seven daily round trips starting at 6:40 A.M. from Anoka. Streetcars were rented from Minneapolis St. Ry. for this initial service; one car at a time was operated from a pool of three cars, 1516, 1714, and 1717, which had been fitted with destination roll signs reading "Minneapolis & Anoka". A ticket and express office and waiting station was established at 517 2nd Ave. So. in downtown Minneapolis; the trackage rights over which the cars operated consisted of the "2nd St. N.E." line tracks to Central Ave. (now E. Hennepin Ave.) — Hennepin Ave. — High St. — Marquette Ave. (originally 1st Ave. So.) — 6th St. — 2nd Ave. So. — Washington Ave. — Marquette — High St. and return via same route as inbound trips. On October 22nd 6,000 persons gathered in Anoka to celebrate the advent of streetcars.

Electricity was purchased from the Minneapolis General Electric Co. (which subsequently became part of Northern States Power Co.). One Westinghouse 300 KW rotary converter purchased in 1915 was installed at NSP's Coon Rapids Dam plant. A second Westinghouse 300 KW rotary converter was purchased in 1916 and installed at NSP's Riverside plant in Minneapolis. Transmission current was 3 phase, 60 cycle, 2300 volt alternating current.

Four passenger motor cars were ordered from the Twin City Rapid Transit Co.'s Snelling Shops in 1915. Two cars were completed in December, 1915. #1 (TCRT 1786A) completed December 7, 1915 at a cost of $6,000. This was a standard TCRT class L-8 except that the front platform was specially arranged for a baggage-mail-freight compartment. The front bulkhead was constructed two windows to the rear of its normal location and a specially designed baggage door-motorman's door combination utilized. #2 (TCRT 1786B) completed December 8, 1915, at a cost of $6,000. This was a standard TCRT class L-8 furnished without alteration. Both cars were equipped with Twin City #9 trucks, four G.E. 200 motors,

Builder's photograph of M. A. & C. R. Ry. 1 on the transfer table at the Snelling Shops, December, 1915. (TCRT)



K-43-F2 controller, and weighed 41,700 pounds.

Two passenger motor cars were purchased second-hand from a Cleveland, Ohio, "used streetcar" dealer at a cost of $1,200 each, also in 1915. They were assigned MA & CR numbers 3 and 4. These two cars had been originally built as open motor cars by the G.C. Kuhlman Co. in 1902 for the Cleveland Rys. They were rebuilt by the Cleveland Rys. in 1910 to closed cars with long enclosed platforms. It appears they might have been Cleveland Rys. 23 (ex 355) and 29 (ex 365). Details were: length overall 47'1", length of body 34', length of each platform 6', width 8'1", wooden underframe, seating capacity 26 persons, and weight about 19 tons.

Other equipment acquired during 1915 included: #1, a single truck, double nose, Snow Plow acquired second-hand at a cost of $709.30 (Weight was 8 tons); and one Buda section car purchased for $28.55 which was equipped with a Veerac gasoline engine manufactured in Anoka.

MA & CR pursued freight traffic at an early date. The track on Main St. in Anoka was extended into an industrial area adjacent to the Pillsbury-Washburn Flour Mills Co.'s Lincoln Mill and several spur tracks constructed to local industries. In June, 1916, a depot-office building of brick construction (24' wide x 32' long) was completed on 1st Ave. between Main St. and Jackson St., just south of a temporary structure. The June 21, 1916, issue of the Anoka newspaper was giving MA & CR a bad time for running freight cars through the streets at any hour, day or night, even Sundays. Apparently the steam locomotive was used to haul freight cars from Minneapolis to Anoka, while the switching through the streets was done with electric equipment — probably with the snow plow used as a locomotive. However on July 4, 1916, a brand new electric freight motor car was received from the McGuire-Cummings Mfg. Co. at a cost of $7,572.54. Assigned MA & CR #5, it was a double end, arch roof, car equipped with McGuire 70A trucks, type MK control with C-101-A controllers, General Electric motors of unknown model number, MCB couplers, and weighed 37 tons. This car was used for switching in Anoka as well as for hauling freight trains between Anoka and Minneapolis. In addition LCL freight express, 4th class mail, milk and cream were carried in the car itself.

Additional equipment acquired during 1916 consisted of the following. #6 passenger motor car acquired in Cleveland, Ohio, identical to cars 3 and 4, and acquired in the same manner at a cost of $1,200. The same specifications apply to this car. This car was probably ex-Cleveland Rys. 369. #7 passenger motor car, ex Twin City Rapid Transit Co. 1713, built November 18, 1914 and acquired by MA & CR on July 3, 1916 at a cost of $6,973.90. This was a standard TCRT class L-8 car, but TCRT was requested to rebuild the front bulkhead one window to the rear of its normal location to accommodate mail and baggage; however it was actually rebuilt identical in appearance to 1. Mechanical equipment and specifications were identical to cars 1 and 2. Seating capacity was 44 persons. #101 Flat Trailer was acquired second-hand at a cost of $67.55. It was 35' long and 9'3" wide.

Thus equipment at this time included 6 passenger cars (1-4 and 6-7), one steam locomotive (1), one electric locomotive (freight motor car 5) and one service motor car (snow plow 1).

Additional trackage was constructed in Anoka on 3rd Ave. and Jackson St., about .25 miles of track, to facilitate passenger service to the new depot. The October 6, 1916, issue of the Anoka newspaper reported that all inbound cars (to the depot) turned on 3rd Ave. at Main St. to Jackson St., down Jackson to 1st Ave. and thence to the new depot. All inbound cars departed from the depot and proceeded directly up Main St. As of September 30, 1916, the track mileage was: first track 15.44 miles, sidings 2.22 miles, and total track 17.66 miles.

The timetables effective December 30, 1916 and November 11, 1917 which have been reproduced herein indicate the frequency of service offered as well as the number of regular passenger stops. (It has been rumored that 1916 summer service consisted of 14 daily round trips with 4 additional round trips on Sundays.) Additional public and private flag stops brought the total number of passenger stops to about sixty. Analysis of the November 11, 1917 timetable reveals that the overall schedule speed was about 17 miles per hour; the schedule speed on the right-of-way between Oak Grove and Riverview was 28 miles per hour; all of this indicates the effect of slow street running in Minneapolis and the sparsely-populated rural area.

Twin City Rapid Transit Co. passenger equipment was often rented for special occasions to handle increased passenger traffic. One such annual event was Minnesota State Fair Week when cars were run through to the Fairgrounds in St. Paul from Anoka. Mpls. St. Ry.'s East Side Station trackage was used to route MA & CR cars between the "2nd St. N.E." line and the "Como-Harriet" line.

Officials of the MA & CR during the time it was controlled by C.P. Bratnober were the following:

President: C.P. Bratnober (*)
1st Vice-Pres.: J.M. Junge (*)
2nd Vice-Pres.: Henry Junge (*)
Secretary: H.H. Stevens (Mpls.)
Treasurer: F.H. Stevens (Mpls.)
Comptroller: H.J. Droheim (*)
Auditor: Gus Peterson (Anoka)
General Manager: A.E. Appleyard (Mpls.)
Superintendent and Purchasing Agent: A.A. Kranhold (Anoka)
Electrical Engineer, Master Mechanic and Engineer Power Station: Edward Marander (Anoka)

(*) The office location for these officials was listed as Pillsbury Ave. and Territorial Rd., St. Paul, which is the location of the Central Warehouse Company's offices.

STATIONS

MINNEAPOLIS (519 2nd Ave. So.)	COLEMAN
	FERNVALE
OAK GROVE	FOLEY
COLD SPRINGS	BRYAN
RIEDEL	HEWSON
NELSON	COON RAPIDS
FRIDLEY	HANSON
NEW DAYTON	OAKLAND
MYERS	RIVERVIEW
ONAWAY PARK	ANOKA

COMMUTATION RATES

Limited to Use During 27-Day Period

(Exclusive of Sundays and Holidays)

54 Rides—66 2-3 per cent of Regular One Way Fare

Limited to Use During Year Issued

10 Rides 85 per cent of Regular One Way Fare

25 Rides- 80 per cent of Regular One Way Fare

50 Rides—75 per cent of Regular One Way Fare

Round Trip Tickets at Reduced Rates

Employees are required to give courteous consideration to the requests of patrons. Reports, suggestions or complaints of any nature are invited.

Minneapolis Ticket and Express Office 519 2nd ave. s
Tels. N. W. Nicollet 1369: T. S. Center 1673
Freight Depot [with Soo Line] 5th ave. n. & 2nd st.

Anoka Office, 1st Ave. Bet. Main & Jackson
Telephone N W 35

Make inquiries at above offices or of undersigned relative to freight, package freight or express service.

A. A. KRANHOLD, Supt.
Anoka, Minn.

MINNEAPOLIS, ANOKA & CUYUNA RANGE RAILWAY COMPANY

TIME TABLE NO. 7

(Effective Dec. 30, 1916, 12:01 A. M.)

SUBJECT TO CHANGE WITHOUT NOTICE

ELECTRIC TROLLEY CARS

Anoka Leave [Anoka Station]		Minneapolis Leave [519 2nd Ave.
6:15 a. m.	Daily	7:25 a. m.
7:35 a. m.	Daily	8:45 a. m.
9:05 a. m.	Daily	10:15 a. m.
11:50 a. m,	Daily	1:00 p. m.
2:10 p. m.	Daily	3:20 p. m.
4:00 p. m.	Saturday and Sunday	5:10 p. m.
4:20 p. m.	Daily Ex. Sunday	5:50 p. m.
5:30 p. m.	Sunday only	6:40 p. m.
7:00 p. m.	Daily	8:10 p. m.
8:45 p. m.	Synday only	9:55 p. m.
10:05 p. m.	Daily	11:15 p. m.

Cars take following route in Minneapolis: (Inbound) On 2nd St. to Central Ave. to Union Depot to High St. to Marquette Ave. to 6th St. to Station, 517 2nd Ave. S. (Outbound) to Washington Ave. to Marquette Ave. and then via same route as inbound.

Unexcelled Passenger, Freight and Express Service. Your patronage is urgently solicited. Ship via the M., A. & C R. Ry.

A. A. KRANHOLD, Supt.,
Anoka, Minn.

(OVER)

MINNEAPOLIS, ANOKA & CUYUNA RANGE RY.

A. A. KRANHOLD, Supt., Anoka, Minn.

Sat. Sun	Sat Sun	Daily									11-11-1917 565	Daily								Sun Sat	Sun Sat.
81	21	11	15	18	9	7	5	3	1		Lv Ar	2	4	6	8	10	12	14	16	22	82
10104	5015	50	11208	1033	101	10	10108	4017	10		Minneapolis	7	0718	3710	0711	0733	0715	3718	0711	0047	3707
10425	2216	22	11488	4233	421	43	10429	1217	42		Oak Grove	6	3518	0539	3512	3552	3515	0517	3510	3547	0705
10435	2316	23	11498	4333	431	44	10439	1317	43		Cold Springs	6	3418	0419	3412	3422	3415	0417	3410	3447	0407
10455	2516	25	11528	4533	451	46	10459	1517	45		Riedel	6	3218	0219	3212	3232	3215	0217	3210	3247	0207
10475	2716	27	11538	4733	471	48	10479	1717	47		Nelson	6	3018	0019	3012	3032	3015	0017	3010	3047	0007
10495	2916	29	11558	4933	491	50	10499	1917	49		Fridley	6	2817	5819	2812	2832	2814	5817	2810	2843	5806
10515	3216	32	11588	5233	521	53	10529	2217	52		Myers	6	2517	5519	2512	2532	2514	5517	2510	2543	5506
10535	3316	33	11598	5433	541	55	10549	2417	54		Onaway Park	6	2417	5419	2412	2412	2414	5417	2410	2443	5406
10555	3516	35	12008	5533	561	57	10559	2517	55		Coleman	6	2217	5219	2212	2212	2214	5217	2210	2313	5206
10585	3816	38	12038	5833	592	00	10589	2817	58		Foley	6	1917	4919	1912	1912	1914	4917	2010	1913	4906
11005	4016	40	12059	0004	012	02	11009	3018	00		Bryan	6	1717	4719	1712	1712	1644	4717	1810	1713	4706
11025	4216	42	12069	0204	032	04	11029	3218	02		Hewson	6	1517	4519	1512	1512	1444	4517	1610	1513	4506
11035	4316	43	12079	0304	042	05	11039	3318	03		Coon Rapids	6	1417	4419	1412	1412	1344	4417	1510	1413	4406
11045	4416	44	12089	0504	052	06	11049	3418	04		Hanson	6	1317	4319	1312	1312	1244	4317	1410	1213	4306
11075	4716	46	12109	0804	092	09	11079	3718	07		Oakland	6	1017	4019	1012	1012	0944	4017	1010	1013	4006
11105	5016	50	12149	1004	152	12	11109	4018	10		Riverview	6	0717	3719	0712	0712	0644	3717	0710	0713	3706
11175	5716	57	12209	1704	202	19	11179	4718	17		Ar. Anoka Lv	6	0017	3019	0012	0012	0004	3017	0010	0013	3006

Sunday Trains lv Minneapolis 11.40-am and 7.40 pm: lv Anoka 10.80 am, and 9.00 pm.
Leaving Minneapolis, cars start from 517 2d Ave. So., and pass Union Depot.

The meeting points for opposing trains on these timetables were: Minneapolis St. Ry. double track, Onaway siding, Coon Rapids Dam spur, and Oakland siding.

Minneapolis, Anoka and Cuyuna Range Railway Company

EDWARD P. BURCH, RECEIVER

TIME TABLE NO. 25

EFFECTIVE SUNDAY, OCTOBER 7, 1928

DAILY

LEAVE BRIDGE SQUARE ANOKA	LEAVE 7th STREET and 3rd AVE. NO. MINNEAPOLIS
6:30 a. m.	7:45 a. m.
8:15 a. m.	10:10 a. m.
11:30 a. m.	1:10 p. m.
1:30 p. m.	3:10 p. m.
3:40 p. m.	5:10 p. m.
4:30 p. m.	6:10 p. m.
6:30 p. m.	8:10 p. m.
9:30 p. m.	10:55 p. m.

SAVE by purchasing Commutation Tickets

15 - 50c fares 17 - 40c fares
22 - 30c fares 32 - 20c fares
TICKETS - $5.00 PER BOOK
Single Fares - 50c Round Trip - 75c

SEND Merchandise via M. A. & C. on passenger cars as express at freight rates.

Minimum charge..... 25 cents
Maximum charge.....25c per cwt.

Connection at Seventh Street Station with Minneapolis, Northfield & Southern Railway and with Minnesota Western Railroad.

PEARL PRINTERY—ANOKA

Directories of the period indicate MA & CR's General office was located in Anoka but that an office was also maintained at 4200 Washington Ave. N., Minneapolis, for several years.

J.M. Junge and Henry Junge, First and Second Vice Presidents, were succeeded by H.L. Bratnober in 1919.

The Lincoln Mill of the Pillsbury-Washburn Flour Mills Co. in Anoka was served by a spur track .8 mile long from the joint Great Northern Ry.-Northern Pacific Ry. main line, which was built in 1879. (A 387' siding off this spur for W.H. LaPlant was built in 1908.) A map dated December, 1916, furnished to the Minnesota Railroad and Warehouse Commission showed a proposed connection from MA & CR's Anoka wye northward to a connection with the Lincoln Mill spur track near the point the latter branched off the G.N. Ry. main line. The June 6, 1917, issue of the Anoka newspaper reported that the MA & CR was extending its track north from 6th Ave. and Main St. over old abandoned N.P. Ry. right-of-way to connect with the Lincoln Mill spur track where it left the N.P.-G.N. Ry. main line. The article also stated that the electric line was to handle all switching on the spur track; the steam railroads would no longer operate over it. This was also supposed to eliminate the running of freight cars on Main St. The connection was completed but both MA & CR and the G.N. Ry. operated over the spur track, each performing its own switching. It is not known whether the spur track was electrified at this time or MA & CR used its steam locomotive for switching.

The track mileage operated during the 1917-1919 period was reported as: first track 15.44 miles, sidings 2.47 miles and total track 17.91 miles. Trackage rights over the Mpls. St. Ry. covered 3.77 miles of double track line, or 7.54 miles of track. During 1917 the 1200' spur track which had served a brick plant and yard was removed.

As business increased additional equipment was purchased. During the 1917-1919 period the following cars were added to the roster.

1917

#1 Snow Plow was damaged in an accident and subsequently scrapped.

Three flat trailers were acquired second-hand at a cost of $250 each. 102 and 103 were 37' long and 9'4" wide. 502, later re-numbered 104, was 28' long and 7'9" wide.

One passenger motor car and one snow plow were acquired second hand from Twin City Rapid Transit Co. in one transaction.

#8 passenger motor car, ex-TCRT 1855 built June 28, 1917, was acquired November 20, 1917, at a cost of $8,777.36. This was a standard TCRT class L-8 which was furnished without alteration. The mechanical data and specifications were identical to cars 1, 2 and 7.

#25 snow plow, ex-TCRT 25 built November 22, 1904, was to be repaired and placed in good serviceable condition by TCRT. The car was received by MA & CR in early 1918 at a cost of $2,525. This car had a platform on the roof for use as a line car as well.

1918

101 flat trailer was rebuilt to a gondola trailer; total value was then $177.16.

Sideboards were installed on 103 flat trailer. 104 flat trailer was returned to the seller.

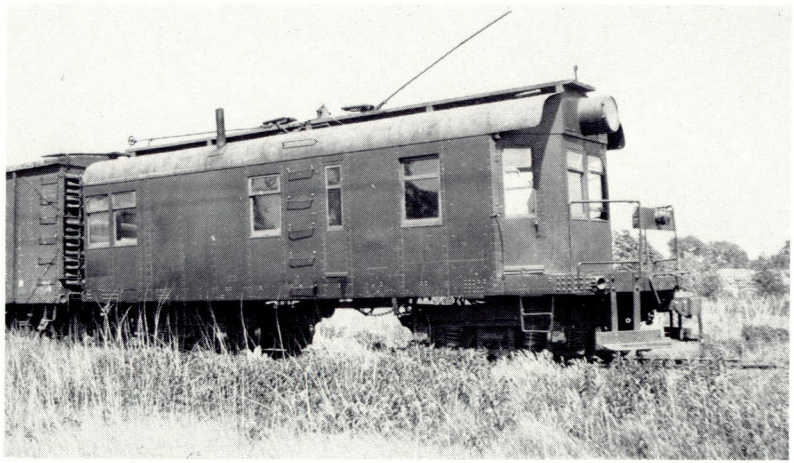
1919

Six air-operated side-dump trailers were acquired second-hand: 1-6 had been built in 1915 by the Western Wheel & Scraper Co.; 26' long and 8' wide, they had a capacity of 12 cubic yards each and weighed 15 tons. #1 and #2 section car trailers were acquired new from Fairbanks-Morse Co.; and 1 electric welder was acquired new from the Indianapolis Switch and Frog Co.
Passenger car 3 was rebuilt into an express motor car.

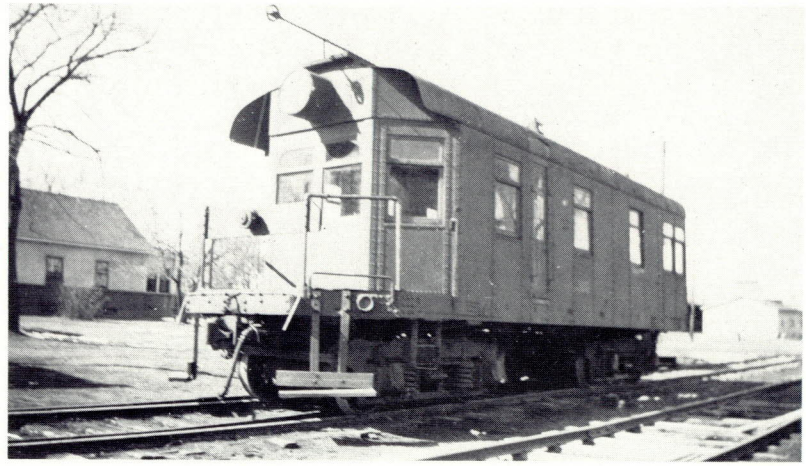
Although it was reported in 1917 that MA & CR was to perform all switching on the Lincoln Mill spur track in Anoka, this did not actually come about until April 5, 1921, when the MA & CR entered into an agreement with the G.N. Ry. Since both companies had obtained from the Pillsbury-Washburn Flour Mills Co. the right to operate over the spur track, to avoid duplication of switching movements it was agreed MA & CR would do the switching for both companies. GN was to pay the MA & CR $2.25 per car, loaded or empty, per round trip. Apparently at this time MA & CR electrified the Lincoln Mill spur trackage.

On March 6, 1922, further agreements were entered into affecting operation of the Lincoln Mill spur track. Since the right-of-way was owned by the Pillsbury-Washburn Flour Mills Co. and the rails and fastenings by the Great Northern Ry., it was agreed between Pillsbury and the GN that Pillsbury would purchase the rails and fastenings for $10,132.99. Pillsbury was also to acquire the rails and fastenings of the spur tracks owned by the MA & CR and connect them with the GN track. Both GN and MA & CR were to have the right to operate over both tracks.

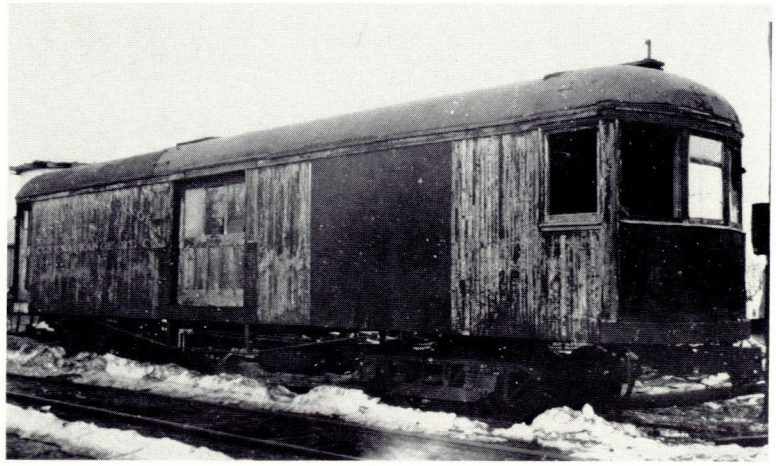
Also on March 6, 1922 Pillsbury entered into an agreement with MA & CR to purchase the rails and fastenings of spur tracks constructed by MA & CR on right-of-way owned by Pillsbury. The purchase price was $4,117.00. Since MA & CR had equipped both its spur tracks and the GN Lincoln Mill spur tracks with electric overhead wires and was switching all cars by electric locomotive, provision was made for payment by MA & CR to Pillsbury for the privilege of installing and maintaining the overhead poles and line as well as for the right to use the tracks. MA & CR was to repair and maintain the tracks at its own expense. MA & CR was also to switch all the cars over the spur tracks.



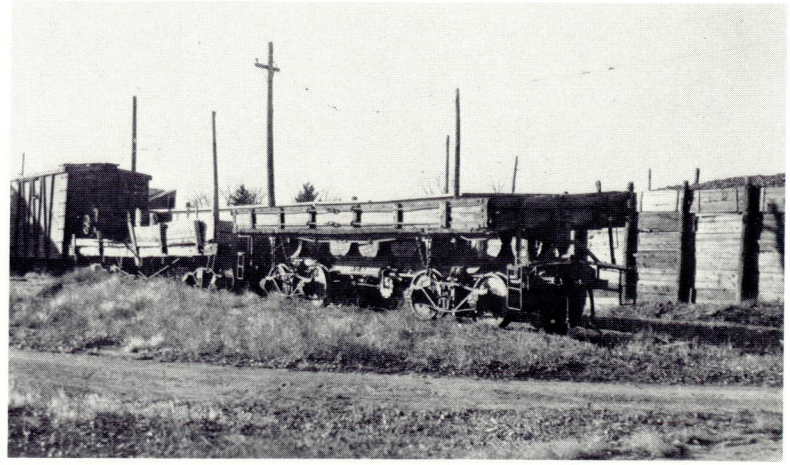
Electric locomotive 100 as it appeared in the 1930's when the company was still prosperous enough to keep their equipment painted. (Stephen D. Maguire; Joe Hutchinson collection)



Locomotive 100 laying over on the main line, adjacent to the Anoka carhouse, in the early 1940's. (Joe Hutchinson collection)



The only suitable photograph of freight motor car 5 located thus far was taken in 1937 at the Anoka carhouse; the car had been in outside storage since about 1925. (Robert M. Hanft; Minnesota Historical Society collection)



Dump car 2 and flat car 101 in Anoka on one of the sidings, 1937. (Robert M. Hanft; Minnesota Historical Society collection)

In 1922 the company purchased electric freight locomotive 100 from the Central Warehouse Co. of St. Paul at a cost of $12,000. This locomotive had been built by the General Electric Co. in 1913 as a gasoline-electric locomotive for the Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Co. (Dan Patch Electric Lines) at a cost of $34,500.00. It was sold in 1917 to the Central Warehouse Co. for $8,000.00 who subsequently converted it to straight electric operation by removing the gasoline motors and electric generators and replacing the lost weight with concrete flooring in the underframe. Data listed by the MA & CR records included: 36'10" long, 14'6" high, 6'10" wheelbase, 20'6" truck centers, 33" wheels, Wason RM54B trucks, 4 GE 205D (100 h.p.) motors, two C-74-F controllers with Type M control, weight 43 tons, and capacity 600 tons at 10 m.p.h. or 500 tons at 15 m.p.h. 100 was used to switch cars on the Lincoln Mill spur track while both freight motor car 5 and 100 were used to haul freight trains between Minneapolis and Anoka.

Effective January 1, 1923, the downtown Minneapolis terminal was moved to the Electric Short Line Terminal Co. depot at 3rd Ave. N. and 7th St. N. which was also used by the Minneapolis, Northfield & Southern Ry. and the Electric Short Line Ry. (later Minnesota Western Ry.). Mpls. St. Ry. constructed a wye on the northwest side of the building from its trackage on 7th St. N. The trackage rights were changed to: E. Hennepin Ave. — 1st St. N. — 1st Ave. N. — 8th St. N. — 7th St. N. to the depot, then wye and return via the same route.

In 1923 passenger cars 4 and 6 were retired and air-operated side-dump trailers 1-6 were sold. Dump trailer 2 which had been sold to the Electric Short Line Ry. was returned by them in 1924. Steam locomotive 1 was disposed of in 1924. Declining passenger revenues prompted the conversion of certain passenger cars to one-man operation. TCRT was requested to make conversion but as MA & CR was short of funds the instructions were to use the utmost economy in rebuilding the cars. During 1925 cars 2 and 8 were rebuilt; #2: front entrance-exit doors were installed (the same type as used on TCRT's front exit cars) and the rear steps and wire gates removed being replaced with a fully enclosed platform with doors for freight and express loading and unloading; #8: front entrance-exit doors were installed as on #2 but the rear steps and wire gates were retained.

In 1926 passenger car 1 was also rebuilt for one-man operation by TCRT in the identical manner as 2 although the front bulkhead was not altered. (Passenger car 7 was never rebuilt for one-man operation.) Also in 1926 express motor car (rebuilt passenger car) 3 and flat trailer 103 were retired.

A good description of the extent of freight operations during the middle 1920's has been obtained from ICC records. The principal commodities handled were:

Wheat and wheat products (comprising about 50% of the interstate freight traffic of MA & CR); wheat came from Minneapolis and Duluth consigned to the Lincoln Mill. After milling it was re-shipped to Chicago, Omaha and Duluth.

Building materials: cement, rock, stone and sand. Inbound cars of cement came from Mason City and Duluth.

Petroleum from Oklahoma, Texas, and Wyoming.

Coal from the C. B. & Q. Ry. at W. Frankfort, Ill.; L. & N. Ry. in Illinois and W. Kentucky, and from the Soo Line Ry. at Duluth.

Ammunition: from Anoka to Watertown, S.D., and St. Louis, Mo.; and from Omaha to Anoka.

Lumber from Washington, Oregon, Idaho, British Columbia; Fort Francis, Ontario, and Bemidji, Minn.

Potatoes to Chicago and Memphis.

Brass from Kenosha, Wisc., and Alton, Ill.

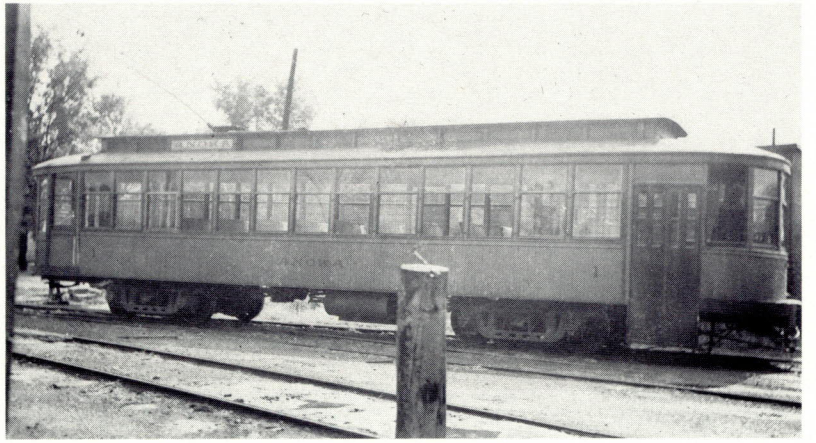
About 85% of its freight traffic was interstate in nature; very little local freight traffic was handled. Some figures are available for two years:

	1925	**1926**
Inbound carloads	1501	2113
Outbound carloads	1211	947
Total carloads handled	2712	3278

Principal competitors were the Great Northern Ry. and the truck and bus lines which operated between Minneapolis and Anoka. It was stated that: railroad interchange connections were located at Minneapolis (Soo Line Jct.) with the Soo Line, Osborne with the Great Northern, and Anoka with the Great Northern and Northern Pacific; running rights over other railroad trackage included about 1 mile over the Soo Line near Soo Line Jct., Lincoln Mill spur track of the Pillsbury Flour Mills Co. in Anoka, 1.72 miles of track (This track connected with the Great Northern which also had running rights over it.); and MA & CR owned nine sidings plus a spur track at Coon Rapids which extended to the dam and plant of the Northern States Power Co.

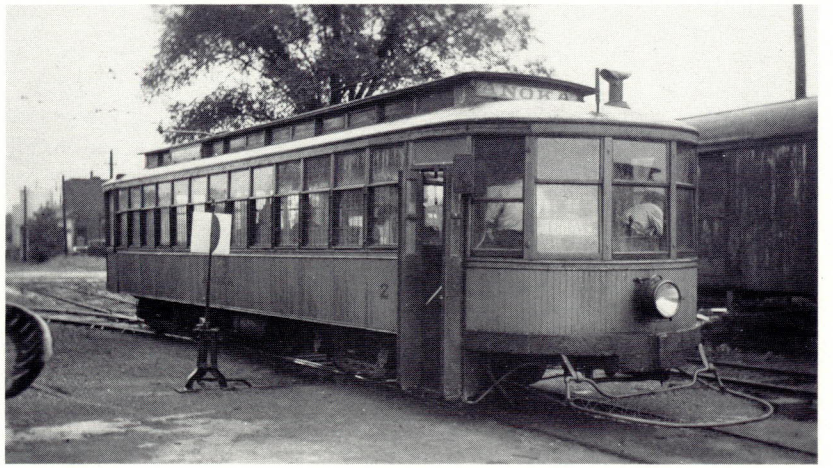
Express and mail were carried on the passenger cars. Express consisted of packages not over 100 lbs. in weight and were delivered store-door by MA & CR, all for a maximum charge of 25 cents per cwt. An employee stated that an occasional car of livestock was handled to and/or from Mr. Bratnober's farm north of Coon Rapids.

On July 28, 1924 MA & CR entered into an agreement with the Minneapolis Belt Line Ry. (a part of the Great Northern Ry.) allowing a spur track to cross the MA & CR line into the new Minneapolis Water Filtration Plant north of 43rd Ave. N.E. and Marshall St. On June 20, 1925, the two companies agreed to allow MA & CR to connect with this spur track and switch freight cars in and out of the plant. A water softening plant was constructed south of 43rd Ave. N.E. and Marshall St. which was served exclusively by an MA & CR spur track.

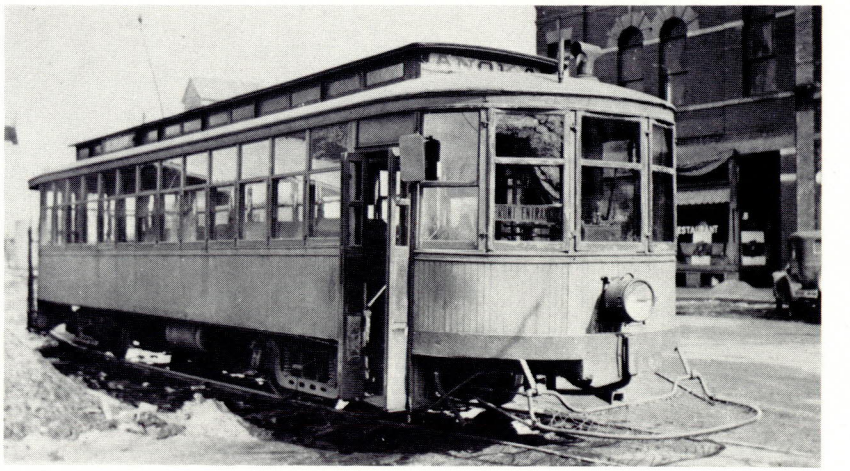


Passenger car 1, rebuilt for one-man operation, at the Anoka carhouse in 1936. (Robert M. Hanft; James Foster collection)

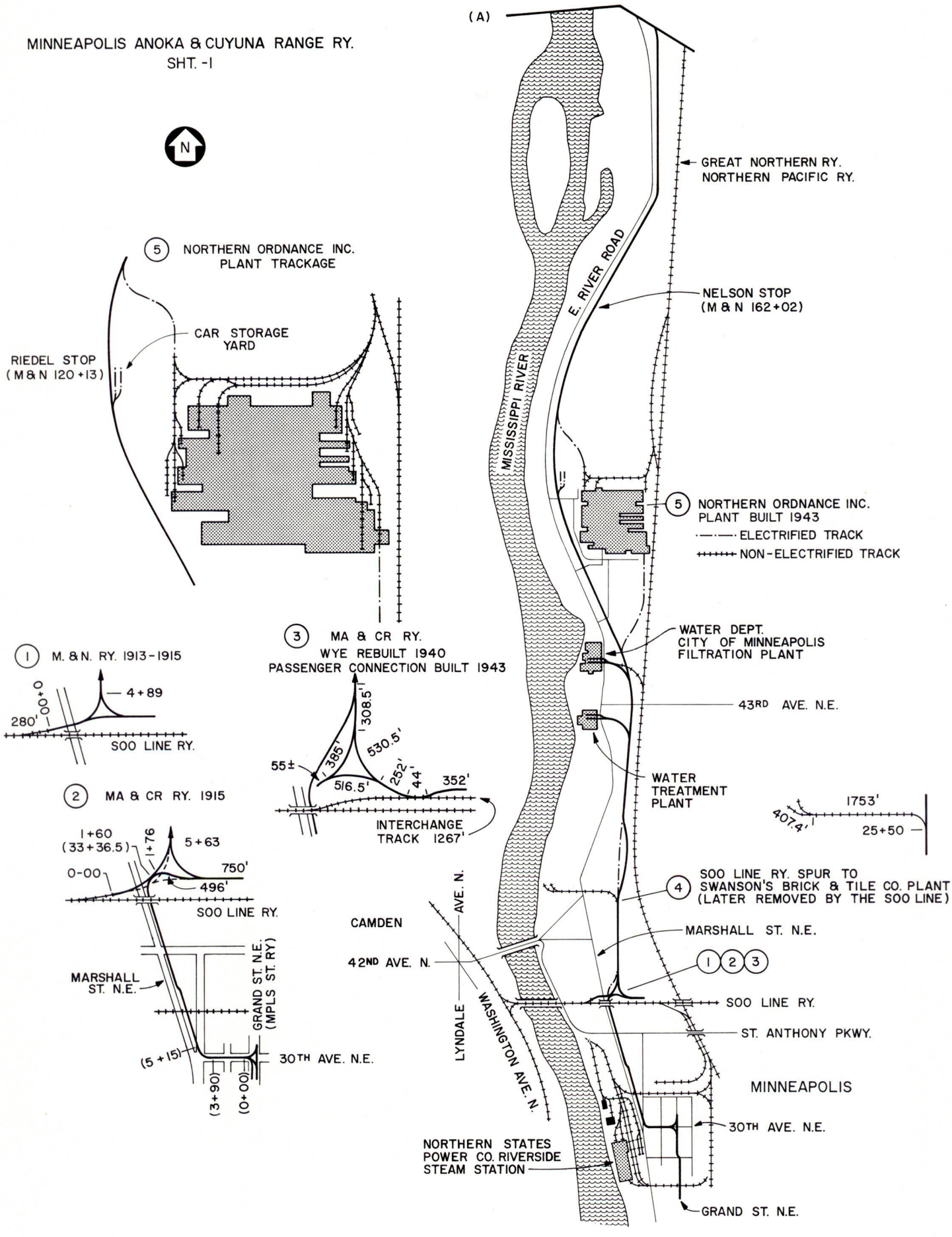
Passenger car 8 laying over on the freight line just north of the Anoka depot. The structure with the Pillsbury flour advertisement on the wall is on the site of the former Lincoln Mill. (Byron D. Olsen collection)

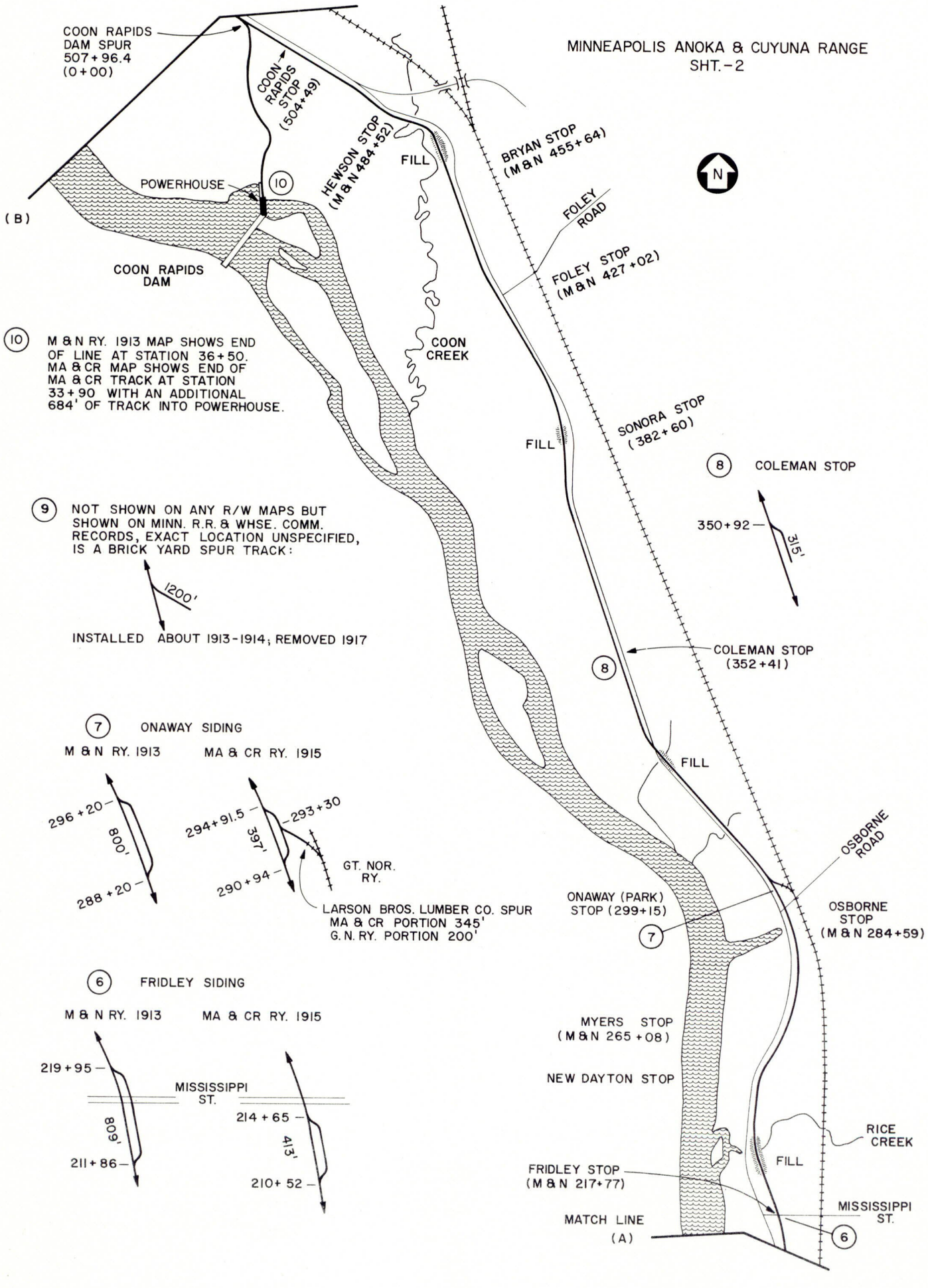


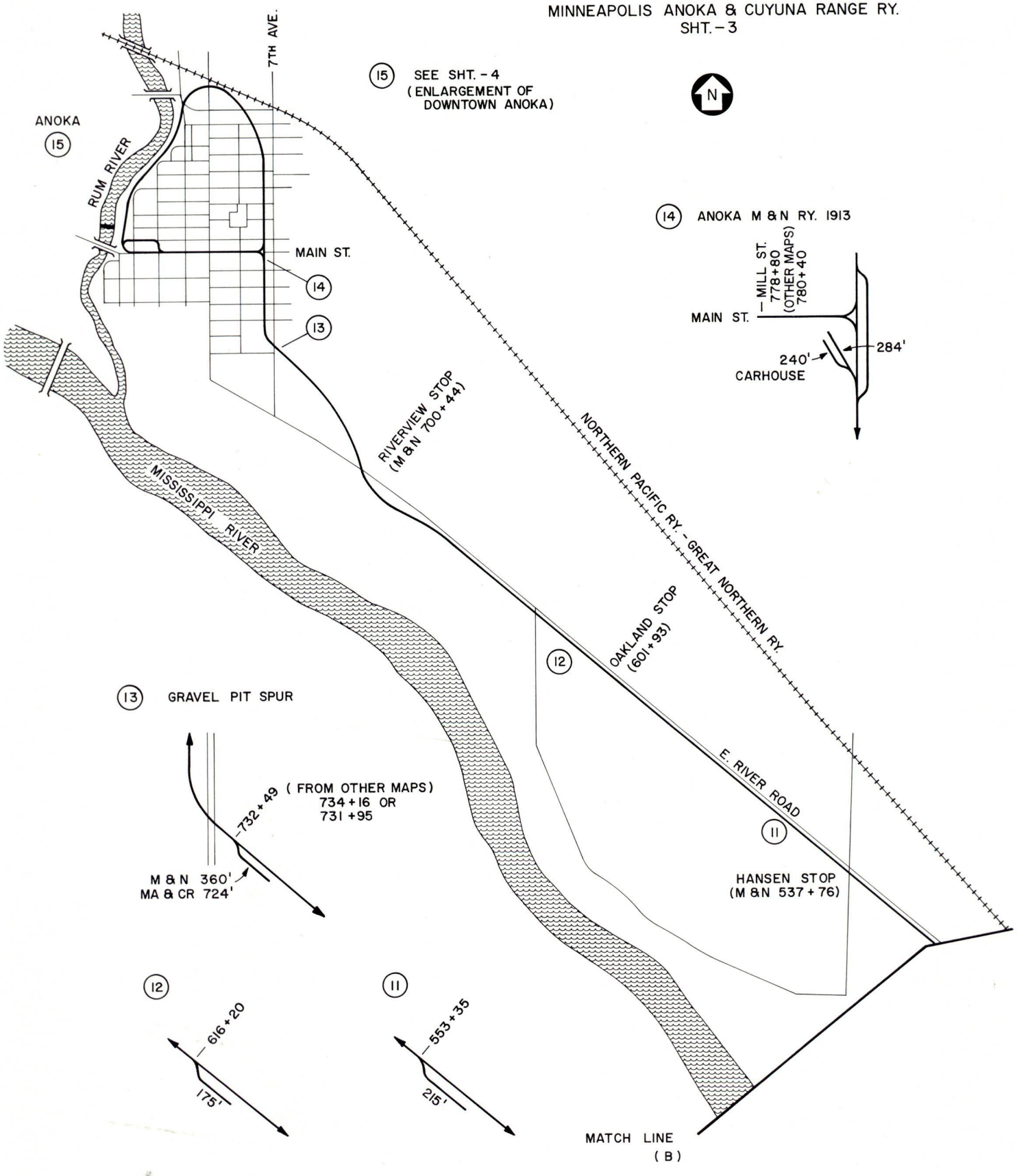
Passenger car 2, southbound, entering the right-of-way at the Anoka carhouse, temporarily delayed because of a trolley dewirement. (Robert Schumacher)

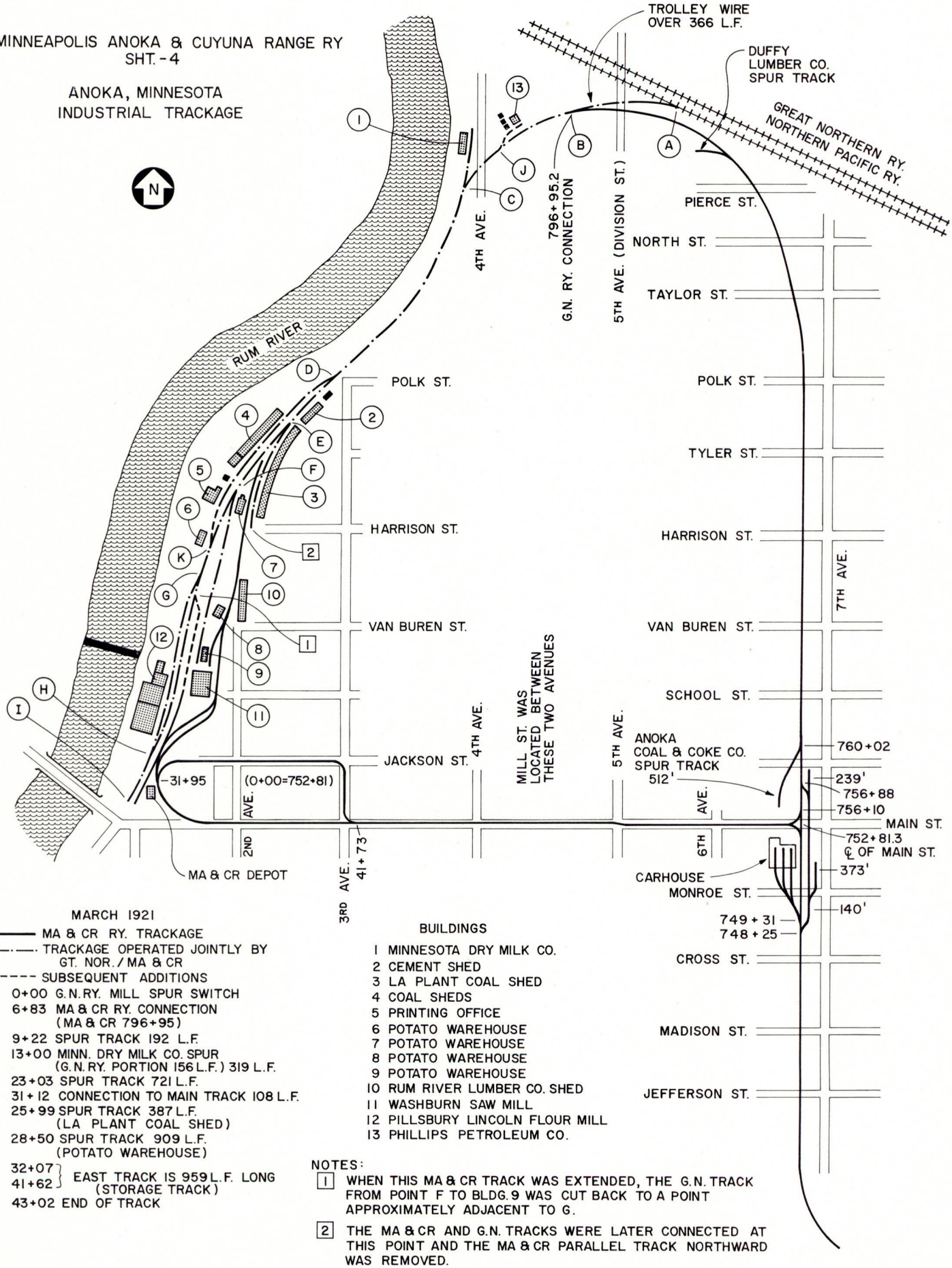


Passenger car 8 at the Anoka depot in the late 1930's, badly in need of repainting. (Minnesota Historical Society collection)


MINNEAPOLIS ANOKA & CUYUNA RANGE RY.
SHT. -1
(A)
N
GREAT NORTHERN RY.
NORTHERN PACIFIC RY.
E. RIVER ROAD
MISSISSIPPI RIVER
NELSON STOP
(M & N 162+02)
5 NORTHERN ORDNANCE INC.
PLANT TRACKAGE
CAR STORAGE
YARD
RIEDEL STOP
(M & N 120+13)
5 NORTHERN ORDNANCE INC.
PLANT BUILT 1943
ELECTRIFIED TRACK
NON-ELECTRIFIED TRACK
WATER DEPT.
CITY OF MINNEAPOLIS
FILTRATION PLANT
43RD AVE. N.E.
3 MA & CR RY.
WYE REBUILT 1940
PASSENGER CONNECTION BUILT 1943
308.5'
530.5'
385'
55±
252'
44'
516.5'
352'
INTERCHANGE
TRACK 1267'
1 M. & N. RY. 1913-1915
0+00
4+89
280'
SOO LINE RY.
WATER
TREATMENT
PLANT
1753'
407.4'
25+50
2 MA & CR RY. 1915
1+60
(33+36.5)
1+76
5+63
750'
0-00
496'
SOO LINE RY.
4 SOO LINE RY. SPUR TO
SWANSON'S BRICK & TILE CO. PLANT
(LATER REMOVED BY THE SOO LINE)
CAMDEN
AVE. N.
42ND AVE. N.
MARSHALL ST. N.E.
1 2 3
MARSHALL
ST. N.E.
GRAND ST. N.E.
(MPLS ST. RY)
SOO LINE RY.
ST. ANTHONY PKWY.
LYNDALE
WASHINGTON AVE. N.
(5+15)
30TH AVE. N.E.
MINNEAPOLIS
(3+90)
(0+00)
30TH AVE. N.E.
NORTHERN STATES
POWER CO. RIVERSIDE
STEAM STATION
GRAND ST. N.E.


MINNEAPOLIS ANOKA & CUYUNA RANGE
SHT.-2
COON RAPIDS DAM SPUR 507+96.4 (0+00)
COON RAPIDS STOP (504+49)
HEWSON STOP (M&N 484+52)
BRYAN STOP (M&N 455+64)
FOLEY ROAD
FOLEY STOP (M&N 427+02)
POWERHOUSE
10
(B)
COON RAPIDS DAM
FILL
COON CREEK
SONORA STOP (382+60)
FILL
8 COLEMAN STOP
350+92
315'
COLEMAN STOP (352+41)
8
10 M&N RY. 1913 MAP SHOWS END OF LINE AT STATION 36+50. MA&CR MAP SHOWS END OF MA&CR TRACK AT STATION 33+90 WITH AN ADDITIONAL 684' OF TRACK INTO POWERHOUSE.
9 NOT SHOWN ON ANY R/W MAPS BUT SHOWN ON MINN. R.R.& WHSE. COMM. RECORDS, EXACT LOCATION UNSPECIFIED, IS A BRICK YARD SPUR TRACK:
1200'
INSTALLED ABOUT 1913-1914; REMOVED 1917
7 ONAWAY SIDING
M&N RY. 1913
296+20
800'
288+20
MA&CR RY. 1915
294+91.5
397'
290+94
293+30
GT. NOR. RY.
LARSON BROS. LUMBER CO. SPUR
MA&CR PORTION 345'
G.N.RY. PORTION 200'
FILL
OSBORNE ROAD
ONAWAY (PARK) STOP (299+15)
7
OSBORNE STOP (M&N 284+59)
6 FRIDLEY SIDING
M&N RY. 1913
219+95
809'
211+86
MA&CR RY. 1915
214+65
413'
210+52
MISSISSIPPI ST.
MYERS STOP (M&N 265+08)
NEW DAYTON STOP
RICE CREEK
FILL
FRIDLEY STOP (M&N 217+77)
MISSISSIPPI ST.
MATCH LINE (A)
6
N


MINNEAPOLIS ANOKA & CUYUNA RANGE RY.
SHT. - 3
7TH AVE.
(15) SEE SHT. - 4
(ENLARGEMENT OF
DOWNTOWN ANOKA)
N
ANOKA
(15)
RUM RIVER
MAIN ST.
(14)
(13)
(14) ANOKA M & N RY. 1913
MILL ST.
778+80
(OTHER MAPS)
780+40
MAIN ST.
284'
240'
CARHOUSE
RIVERVIEW STOP
(M & N 700+44)
NORTHERN PACIFIC RY. - GREAT NORTHERN RY.
MISSISSIPPI RIVER
OAKLAND STOP
(601+93)
(12)
(13) GRAVEL PIT SPUR
732+49 (FROM OTHER MAPS)
734+16 OR
731+95
M & N 360'
MA & CR 724'
E. RIVER ROAD
(11)
HANSEN STOP
(M & N 537+76)
(12)
616+20
175'
(11)
553+35
215'
MATCH LINE
(B)



MARCH 1921

——— MA & CR RY. TRACKAGE

·—·—· TRACKAGE OPERATED JOINTLY BY GT. NOR. / MA & CR

----- SUBSEQUENT ADDITIONS

A 0+00 G.N.RY. MILL SPUR SWITCH

B 6+83 MA & CR RY. CONNECTION (MA & CR 796+95)

J 9+22 SPUR TRACK 192 L.F.

C 13+00 MINN. DRY MILK CO. SPUR (G.N. RY. PORTION 156 L.F.) 319 L.F.

D 23+03 SPUR TRACK 721 L.F.

K 31+12 CONNECTION TO MAIN TRACK 108 L.F.

E 25+99 SPUR TRACK 387 L.F. (LA PLANT COAL SHED)

F 28+50 SPUR TRACK 909 L.F. (POTATO WAREHOUSE)

G 32+07 } EAST TRACK IS 959 L.F. LONG
H 41+62 } (STORAGE TRACK)

I 43+02 END OF TRACK

BUILDINGS

1 MINNESOTA DRY MILK CO.
2 CEMENT SHED
3 LA PLANT COAL SHED
4 COAL SHEDS
5 PRINTING OFFICE
6 POTATO WAREHOUSE
7 POTATO WAREHOUSE
8 POTATO WAREHOUSE
9 POTATO WAREHOUSE
10 RUM RIVER LUMBER CO. SHED
11 WASHBURN SAW MILL
12 PILLSBURY LINCOLN FLOUR MILL
13 PHILLIPS PETROLEUM CO.

NOTES:

[1] WHEN THIS MA & CR TRACK WAS EXTENDED, THE G.N. TRACK FROM POINT F TO BLDG. 9 WAS CUT BACK TO A POINT APPROXIMATELY ADJACENT TO G.

[2] THE MA & CR AND G.N. TRACKS WERE LATER CONNECTED AT THIS POINT AND THE MA & CR PARALLEL TRACK NORTHWARD WAS REMOVED.

On July 9, 1926, the company entered receivership on order of the U.S. District Court. Edward P. Burch was appointed receiver. A 40% decrease in total revenues had been experienced over a five year period; passenger revenue had declined substantially although freight revenue had increased slightly. It was reported that the profitable condition in earlier years was due largely to the patronage of the Lincoln Mill which shipped a great deal of grain into and flour out of Anoka. As the time for the passenger run between Minneapolis and Anoka had never been less than one hour and the roadbed never smooth, the passenger service was not as popular as it might otherwise have been. The 1921 agreement with the Great Northern Ry. for switching cars on the Lincoln Mill spur track was terminated by the GN with approval of the receiver effective April 17, 1927. Beginning November 1, 1927 the GN did all the switching on this spur and charged the MA & CR an amount (varied as to the type of commodity) for each car handled. Apparently the overhead wire remained intact. The MA & CR was listed as in the process of foreclosure in June, 1928, when an attempt was made before the ICC to obtain an increased share of the freight revenues on carload freight traffic in and out of Anoka; this was turned down by the ICC. During 1929 the receiver attempted to get TCRT to purchase all of the equipment, or at least the passenger cars, as he said the Soo Line was interested in purchasing the MA & CR in order to obtain certain savings in freight rates. None of the proposals were consummated.

The track mileage operated at this period of time was:

passenger and freight line-first track		15.02 miles
passenger line-Minneapolis-first track		.62 miles
passenger line-Anoka-first track		.87 miles
subtotal		16.51 miles
sidings	1.82 miles	
carhouse track	.13 miles	
subtotal		1.95 miles
		18.46 miles
Lincoln Mill spur track leased		1.72 miles
total		20.18 miles

The trackage rights over Mpls. St. Ry. were listed as 4.15 miles of line or 8.30 track miles. Equipment owned consisted of four passenger cars (1, 2, 7, 8), one freight locomotive (100), one freight/express motor car (5), one snow plow (25), and three freight trailers (2 dump car, 101 gondola car, and 102 flat car).

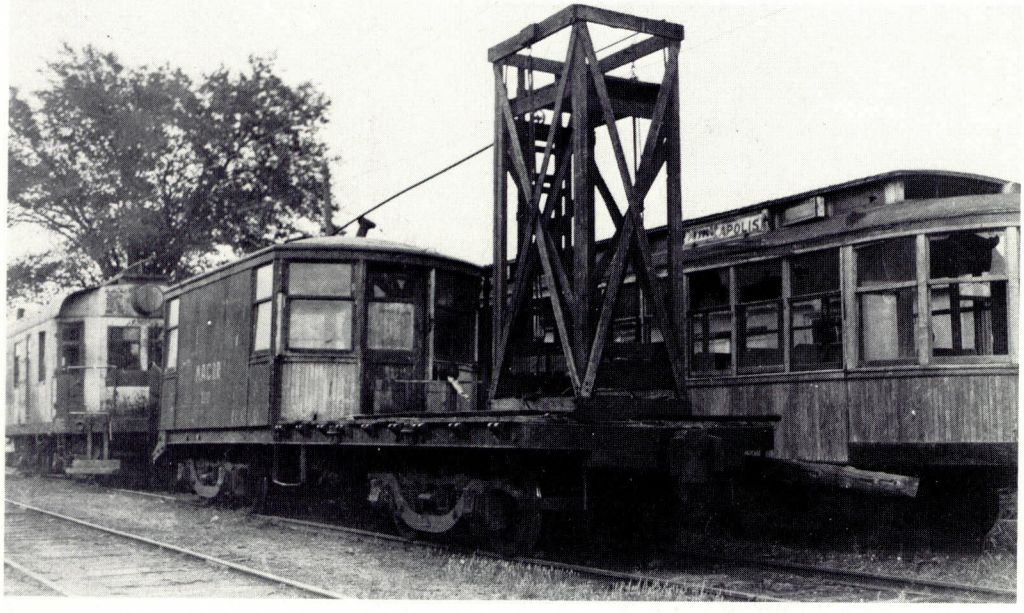
Minneapolis Anoka & Cuyuna Range R.R.

On August 20, 1929, the MA & CR was sold at a public auction to W.D. Lovell for $35,000.00. The Minneapolis, Anoka & Cuyuna Range *Railroad* Co. was incorporated November 25, 1929 in Delaware for the purpose of acquiring and operating the property. The stockholders were: W.D. Lovell (Mpls.) 393 shares, R.T. Lovell (Long Beach, Cal.) 1 share, and W.D. Lovell, Jr. (Mpls.) 1 share, for a total of 395 shares of stock. The receiver continued to operate the line until May, 1930, when the ICC approved the assignment of all rights, title, and interest in the property by W.D. Lovell to the MA & CR R.R. Mr. Lovell had acquired in 1929 from the abandoned St. Paul Southern Electric Ry. the TCRT-built combination snow plow-work car-locomotive for $1,200.00; this car was included in the transfer to the MA & CR becoming their 110. Old snow plow 25 was subsequently retired. Offices of MA & CR were located at 1415 8th St. S.E. in Minneapolis; officers of the company were: W.D. Lovell (President and General Manager), R.M. Thompson (Vice President), M.R. Swedberg (Secretary and Treasurer), K.H. Smith (General Superintendent), and W.D. Lovell, Jr. (Engineer-Maintenance of Way).

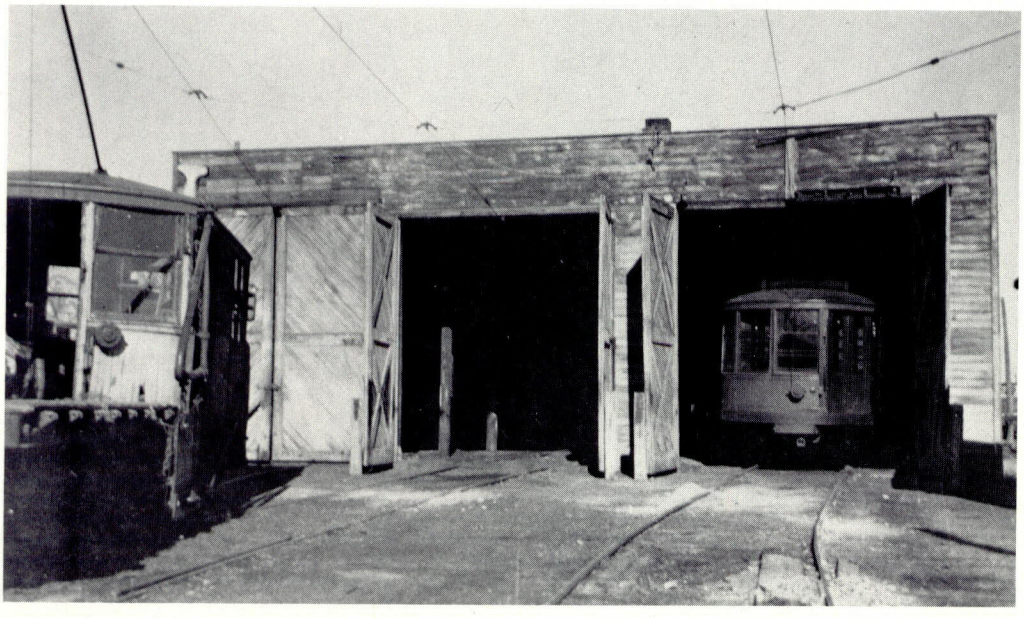
Truck, bus and automobile competition coupled with declining revenues caused by the depression created further financial problems for the company. The passenger schedules effective January 1, 1932 and November, 1935, were identical to that of October 7, 1928 (except the 8:15 A.M. run from Anoka had been changed to 8:30 A.M.) indicating that an attempt was being made to provide reasonable service. The Pillsbury Lincoln Mill in Anoka had been idle for some time (the date of cessation of operations is unknown) and was finally dismantled in 1932. Switching over the Lincoln Mill spur track was again being performed by the MA & CR. However the meager revenues afforded only a minimum of maintenance for road and equipment so that the physical condition gradually deteriorated into a sadly neglected state. Numerous derailments, both freight and passenger, occurred. The line's nickname became "Old Rock and Roll". Business improved somewhat during the middle 1930's so that the serviceable passenger and freight equipment received some maintenance and a coat of paint. However freight motor car 5 and passenger motor car 7 which had been stored outside on a siding at the Anoka carhouse, unused for a number of years, were in very dilapidated condition by 1937. In the late 1930's revenues continued to decline so that maintenance was again neglected. On the passenger cars roofs often leaked, joints creaked, groaned and loosened, and on one occasion it was reported that the air compressor fell off the underframe of a passenger car onto an Anoka street.

In the summer of 1939, a tornado struck Anoka causing considerable damage, including destruction of the overhead trolley wire on Main St. It was reported that the passenger cars were routed over the Lincoln Mill spur track to reach the passenger depot. The company felt that passenger revenues were insufficient to justify rebuilding of the overhead and decided to abandon passenger service. Permission to substitute buses was granted by the Minnesota Railroad & Warehouse Commission and the last electric streetcar ran on August 23, 1939. The next

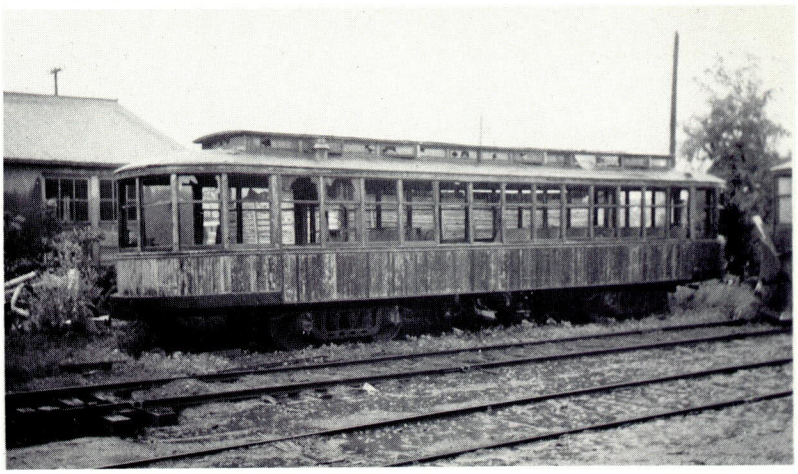
Looking south toward the siding and storage track at the Anoka carhouse, June 27, 1937. Locomotive 100 and snow plow-wire car 110 are on the siding, while part of freight motor car 5 is visible to the left on the storage track. (Herman Rinke)



Looking north toward the siding and storage track at the Anoka carhouse, June 27, 1937. Note the removable line tower on the rear deck of 110. The remains of passenger car 7 on the storage track are partly visible at the right. (Herman Rinke)



A view of the south end of the Anoka carhouse in 1937. 110 is on track 3 at the left, and the rear platform of either passenger car 1 or 2 is visible inside the carhouse on track 1. (Robert M. Hanft; Minnesota Historical Society collection)



Right: The remains of passenger car 7 on the storage track at the Anoka carhouse in 1935. (Joe Hutchinson collection)

Left: Looking toward Anoka from the location of the gravel pit siding in the early 1940's. The cross-tie renewal program ordered by the Minnesota Railroad & Warehouse Commission is in progress. (Joe Hutchinson collection)

day MA & CR began operating two small buses on the East River Road. The passenger cars were placed in storage inside the Anoka carhouse. The passenger depot in Anoka was used for a construction office during the building of a new bridge over the Rum River and then was demolished in 1942.

Electric freight operations continued, however. Due to construction of a new bridge carrying the Soo Line Ry. tracks over Marshall St. N.E. in Minneapolis, the Soo Line trackage connecting the MA & CR track at that point had to be re-located during 1940. The City of Minneapolis ordered MA & CR to remove its track on 30th Ave. N.E. from Columbia Ave. to the Mpls. St. Ry. wye within 30 days from October 11, 1940. The poor condition of MA & CR's track was also causing damage to steam railroad freight cars to such an extent that the Minnesota Railroad & Warehouse Commission placed speed restrictions on all freight trains and ordered a mandatory program of cross-tie renewals. In 1942 snow plow-line car 110 was re-numbered 105 and a refrigerator car purchased from the Soo Line (70244) that year was assigned the number 110 for use as a work car and caboose. Thus at the beginning of World War II the MA & CR was a decrepit freight-only interurban line.

Right: Looking south from the long cut at Bryan station which, on the north, opened to the long fill at Coon Creek. This fill was eroding badly in 1943 according to a consulting engineer's report. The photograph was taken from the rear platform of a passenger car on June 27, 1937. (Herman Rinke)

Northern Ordnance Inc.

In 1943 the Northern Pump Co., Minneapolis, received a government defense contract for the manufacture of naval artillery. A wholly-owned subsidiary, Northern Ordnance Inc., was organized which constructed a sprawling manufacturing plant at 48th Ave. N.E. and Marshall St., Fridley, situated between the MA & CR and G.N./N.P. Ry. tracks. Searching for a means of transporting workers to and from the plant, the MA & CR was investigated. On September 7, 1943, Northern Ordnance Inc. acquired all of the capital stock of MA & CR from W.D. Lovell. (MA & CR had received permission in May, 1940, to operate buses on the West River Road, so the two bus routes were also sold on September 7th to W.J. Nickerson who in turn sold them on September 29th, 1943, to the Anoka-Minneapolis Bus Co.) This purchase set in motion a whirlwind of activity as time was of the essence.

L.G. Barnes, an engineer from the Twin City Rapid Transit Co., was hired on a consulting basis to determine the feasibility of rebuilding the entire line and keeping it in operation. The results of his investigation indicated that the costs of the extensive reconstruction necessary (new ties, new rail bonds, new overhead poles, additional ballast, straightening most of the rail, and rebuilding a large fill which was eroding — trolley wire was all that was in good condition) would far exceed any anticipated freight revenues; as it was the line was just paying minimum maintenance costs. The decision was made to abandon the line from a point near Nelson, to Anoka, a distance of 13.13 miles.

The trackage from 30th Ave. N.E. and Marshall St., Minneapolis, to Nelson was completely rebuilt together with some track relocation and new track construction. Extensive trackage was built serving the manufacturing plant complex. Crushed rock ballast was used throughout and 80# T rail replaced much of the original 56# rail. Soo Line Ry. performed all of this work on a time-and-material basis which took about one month and required the use of a work train consisting of 2 bunk cars, 1 dining car and 1 kitchen car. The Minneapolis St. Ry. did not want to connect with the MA & CR track as they were afraid the City of Minneapolis would insist that MSR furnish passenger service to the city limits at 37th Ave. N.E. MSR did agree to build track on 30th Ave. N.E. from its wye to within 25' of the existing MA & CR track at Marshall St. and to install a siding for storage of enough cars to handle Northern Ordnance Inc. workers transferring between lines. MA & CR built a small concrete-block passenger shelter at 30th Ave. N.E. and Marshall St.

The Lovell management had been loathe to dispose of any equipment, regardless of physical condition. At the time Northern Ordnance acquired the property the following equipment was part of the transaction: electric locomotive 100, snow plow-line car 105, passenger motor cars 1, 2 and 8; and four freight trailers: flat cars 101-102, side-dump car 2, and work car-caboose 110. The trucks, motors and controllers from freight-express motor car 5 were still there, but it is not known just when the body of 5 or the body of passenger motor car 7 were scrapped. The two flat cars were completely rehabilitated, receiving new decks in the process and were re-numbered Northern Ordnance 1 and 2. The three passenger cars were shipped to Twin City Rapid Transit Co.'s Snelling Shops and completely rebuilt for double-end operation during September and October, 1943; appearance was nearly identical to TCRT 1230 except that longitudinal seats exclusively were installed; the cars were re-numbered 1, 2 and 3.

The company's records indicate that two of the rebuilt passenger cars began operating October 18, 1943.

A government requisition to remove the rail on the abandoned portion of the line was effective November 2, 1943. Dismantling operations began November 8th.

Meanwhile negotiations were in progress with the objective of having the G.N. Ry. take over the Lincoln Mill spur track in Anoka plus that portion of the MA & CR main line from the spur connection southerly to Cross St. which served four bulk oil dealers, a lumber yard and a coal yard. Agreement was reached November 15, 1943, whereby MA & CR would remove the catenary overhead (too low for steam locomotive operation) by November 28th; the G.N. would take over all operations on Monday, November 29th, and would subsequently rehabilitate the old MA & CR main track for use by steam locomotives. Because of rail removal operations south of Anoka, rebuilt passenger motor car 3 had been equipped with MCB couplers and left in Anoka to switch the few railroad cars expected until the G.N. Ry. agreement could be finalized. The only real problem was handling carloads of coal for the Anoka Coal & Coke Co. so arrangements were made to temporarily have the coal cars unloaded into trucks from the G.N. Ry. team track; the passenger motor car was then removed from Anoka, probably over the G.N. Ry. to Fridley.

It is interesting to note that a final settlement was made May 31, 1944, between Pillsbury-Washburn Flour Mills Co., MA & CR, and the G.N. Ry. pertaining to the Lincoln Mill spur track. It seems that Pillsbury on November 22, 1941, exercised an option in the March 6, 1922 agreement requesting MA & CR to purchase the spur track. Apparently MA & CR was short of funds at the time and was unable to make payment. In this final settlement MA & CR paid $4,000.00 to Pillsbury for the spur track after which the deeds to the property were properly conveyed to the G.N. Ry.

Apparently as soon as passenger motor car 3 was returned to Fridley from Anoka the frequency of passenger service was increased for records indicate that passenger service on a 20 minute headway for defense plant employees only was begun November 22, 1943. This fre-

Above: Newly rebuilt passenger car 1 poses for an official portrait on October 10, 1943. The color scheme was red roof (white window trim), blue body with white letterboard and belt rail, black truck frames and underbody equipment; the winged symbol was black, orange, red, white and blue. (Northern Ordnance Inc.; James Foster collection)

Below left: Rebuilt passenger car 3 at the Anoka carhouse in November, 1943, used for switching freight cars until the agreement for Great Northern Ry. take-over was completed. (Joe Hutchinson collection)

Below right: Two of the rebuilt passenger cars were fitted with MCB couplers: on both ends of car 3, and on the "A" end of car 2. (Norman F. Podas)

Above: Electric locomotive 1, formerly 100, on the main line at the Northern Ordnance plant, March 15, 1944.

Below: Snow plow-locomotive 105, formerly 110, as it appeared after rebuilding in 1944. The photograph was taken October 18, 1946, after the wartime lettering and emblems had been removed. Color scheme for both 100 and 105 were: red roof, blue body with white trim, black truck frames and underbody equipment. The plow on 105 was painted with black and yellow stripes.

(Both photographs Northern Ordnance Inc.; James Foster collection)

quency of service was to continue throughout World War II. No fares were collected. Also beginning November 22, 1943, Mpls. St. Ry. backed all its regular "2nd St. N.E." line cars down 30th Ave. N.E. to Marshall St. to make passenger connections with the MA & CR cars; this was done from 6 A.M. to 8 A.M. and 4 P.M. to 7 P.M. weekdays. On April 29, 1944, this was increased to include Saturdays: 6 to 8 A.M. and 3:15 to 5:15 P.M.; and Sundays 6 to 8 A.M. plus the 12:45 P.M. trip.

Freight service was continued to the two plants of the City of Minneapolis Water Department and provided to the defense plant itself. Freight cars for the defense plant were handled from the Soo Line interchange to the south as well as from a connection with the G.N. Ry. at the northeast corner of the property. Electric Locomotive 100 was thoroughly rehabilitated in January, 1944, for this service. (It was assigned the number 1 when re-painted but the number 100 was restored in 1946.) Apparently at least two round trips per day were operated. The sequence for each round trip was as follows: the locomotive left the car storage yard at the defense plant for the Soo Line interchange, picking up any empty cars at the defense plant and two water plants; at the interchange the empties were left and any loaded cars picked up. The loaded cars were spotted at the two water plants and on the defense plant lead tracks. Average time per round trip was around two hours.

Snow plow-line car 105 was completely rebuilt in May, 1944. Modifications were made to the body to accommodate installation of the Type MK control equipment from old freight-express motor car 5 inside the cab. The two C-101-A controllers from 5 were also installed so the car could be operated from either end. The original Baldwin trucks were retained but it is not known whether the traction motors were replaced with those from 5. The line tower was removed and concrete ballast blocks placed on the rear deck to compensate for the weight.

By July 1, 1944, when the physical plant was considered complete an inventory was taken; from this the following data has been summarized.

The track mileage comprised: first main track 3.38 miles, sidings 0.80 miles, and total track 4.18 miles. Of this total, 2.43 miles consisted of 80# rail and 1.75 miles of 56# rail. Subsequently in 1944 some track at the north end of the line was removed: 350' of track with 56# rail and a short passing track with 300' of 80# rail.

All of the trolley wire was 4/0 grooved wire. (An additional 1500' of 1/0 grooved wire was also listed.) The overhead poles consisted of 147 30' WRC poles and 80 35' WRC poles.

The rotary converter at the Coon Rapids Dam plant had been removed and placed inside the defense plant building. The rotary converter at the Riverside plant continued in operation at that location. The feeder wire system consisted of: 1250' of 500,000 circular-mil cable and 1250' of 400,000 circular-mil bare copper wire on the north end of the line, plus 3285' of 4/0 bare copper wire and 3750' of 400,000 circular-mil copper wire on the south end of the line.

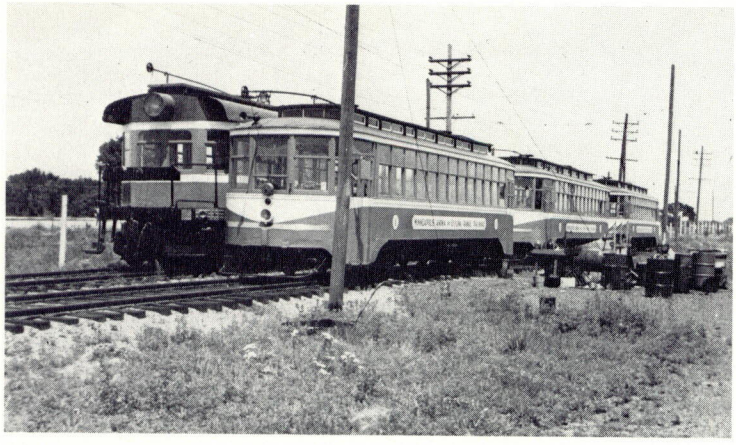
Considerable non-electrified trackage existed inside as well as outside the huge plant buildings so a second-hand gasoline-electric locomotive was acquired to switch cars over this trackage. This was #7438, a Mack Trucks Inc. Model BR Standard (15 ton), serial number 171007, built May 25, 1931 at the Plainfield plant for Fegles Construction Co. (Minneapolis), from whom MA & CR acquired the unit in August, 1944, at a cost of $2,500.00. Data on this locomotive included: length 12'6", width 8'1", cab 4' x 8', height 11'1", wheelbase 7'0", four 30" diameter wheels, one four-cylinder gasoline engine, one G.E. 55 KW D.C. generator, two G.E. HM839W1 traction motors (150 h.p. each), one K type controller, Westinghouse automatic air brakes, two 20 gallon capacity roof type radiators, 35 gallon fuel capacity, two 250 watt headlights, and maximum speed 20 m.p.h. Later on this unit received the MA & CR number 110, the third time this number had been assigned. Railroad cars would be placed by the electric locomotive on lead tracks at both the north and south ends of the plant. The G.N. Ry. also placed cars on a lead track at the north end of the plant. The MA & CR gas-electric locomotive would spot the loaded cars at various locations within the plant as well as picking up the empty cars and returning them to the lead tracks. Apparently a small U.S. Navy diesel-electric locomotive was also available for this purpose.

After the end of World War II passenger service was reduced to the morning and afternoon shift changes only. About 1947 Mpls. St. Ry. discontinued the practice of backing its cars down 30th Ave. N.E. to Marshall St. Northern Ordnance Inc. shifted to peace-time industrial production although some artillery continued to be manufactured. Finally, in April, 1948, passenger service was discontinued completely.

After the end of passenger service in 1948, snow plow 105 was sold (minus its snow plow equipment and concrete ballast blocks) to the Valley City Street & Interurban Ry. (North Dakota) for use as an electric freight locomotive.

In 1949 a trailer flat car, probably built from old work car-caboose 110, was equipped with the snow plow equipment and concrete ballast blocks taken from 105 as well as the McGuire 70A trucks (without traction motors) salvaged from old freight-express motor car 5. This snow plow was pushed by one of the passenger motor cars or locomotive 100 to clear the line in heavy snow falls.

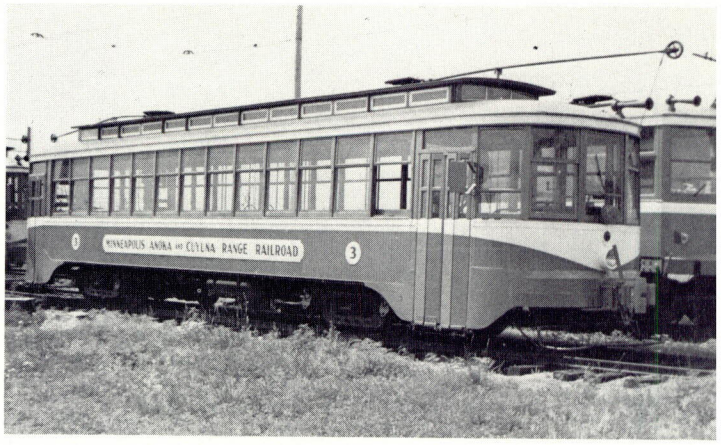
The three passenger motor cars were scrapped on May 14, 1952. During November, 1954, the passenger track from 30th Ave. N.E. and Marshall St. to a point 150' north of the Soo Line underpass was removed. This abandonment involved 0.55 miles of track so the revised mileage figures were: 2.83 miles of first main track, 0.80 miles of sidings, and 3.63 miles of total track. Also in November,



Above: The car storage yard at the Northern Ordnance Inc. plant.

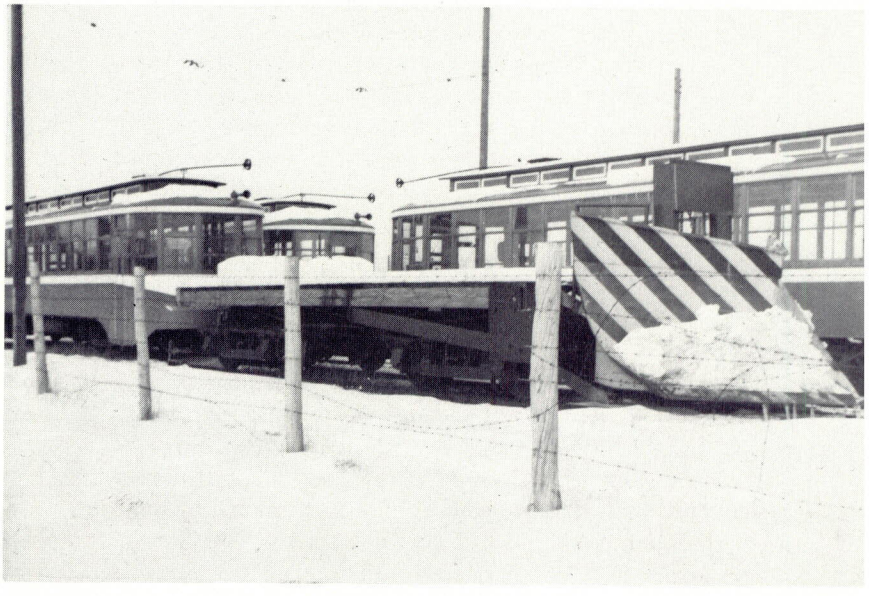
Below: Locomotive 100 with a northbound freight train at the Minneapolis Filtration Plant spur in the early 1950's.

(Both photographs Norman F. Podas)



Above: The three passenger cars received revised lettering schemes after the war ended. This photograph of car 3 shows the result. (Norman F. Podas)

Below: This trailer snow plow was built from surplus equipment in 1949 after 105 had been sold. The coupled passenger car shows their final appearance after all lettering was removed in 1948. (Russell L. Olson)



1954, the rotary converter in and transmission line from NSP's Riverside plant were removed.

During August, 1957, a Waukesha Model 6 WAKDU (250 h.p.) diesel engine and 600 volt D.C. generator were installed inside locomotive 100 for conversion to diesel-electric operation. The overhead trolley wire was then dismantled and the MA & CR became a diesel-electric freight switching road.

FMC Corp. – Great Northern Ry. Ownership

On February 7, 1964, the FMC Corp. purchased from Northern Pump Co. the land, buildings and equipment at its Fridley location and acquired all stock and assets of Northern Ordnance Inc., which included the MA & CR. During 1966 the G.N. Ry. purchased 110 acres of vacant land north of the plant from FMC Corp. which G.N. intended for industrial development purposes. The agreement, dated December 29, 1966, included the MA & CR as part of the transaction; this comprised the 3.83 miles of track, one diesel-electric locomotive (100), one gasoline-electric locomotive (110), and three flat trailer cars. The trailer cars were described as: one 38' long by 9' wide, wood deck, ex NP Ry. 7414; one 40' long by 9' wide, wood deck; one 30'6" long by 9' wide, wood deck, with snow plow attachment. Old notes in the records that came with the acquisition stated that the four trailers acquired in 1943 by Northern Ordnance were eventually all rebuilt to flat cars. (This would have been impractical on the air-operated side dump car, and presumably the latter was eventually scrapped instead.)

At the request of FMC Corp., the three flat trailers were sold back to them in November, 1967. Gasoline-electric locomotive 110 was sold for scrap in February, 1968, to the Duluth Iron & Metal Division of Hyman-Michaels Co., which subsequently donated it to the Lake Superior Museum of Transportation and Industry in Duluth. Diesel-electric locomotive 100 was donated in 1967 to the Minnesota Transportation Museum, St. Paul.

Early in the spring of 1944 the G.N. Ry. had considerably reduced the freight trackage in Anoka. The 850' siding just north of the Rum River Lumber Co. was removed, all of the sidings on the east side of the former MA & CR main track between Cross St. and School St. were removed (as the businesses involved agreed to unload cars from the main track), and 3977' of former MA & CR and Pillsbury Flour Mills Co. track was taken up. Through the years further removals were made in Anoka until all that remains today is:

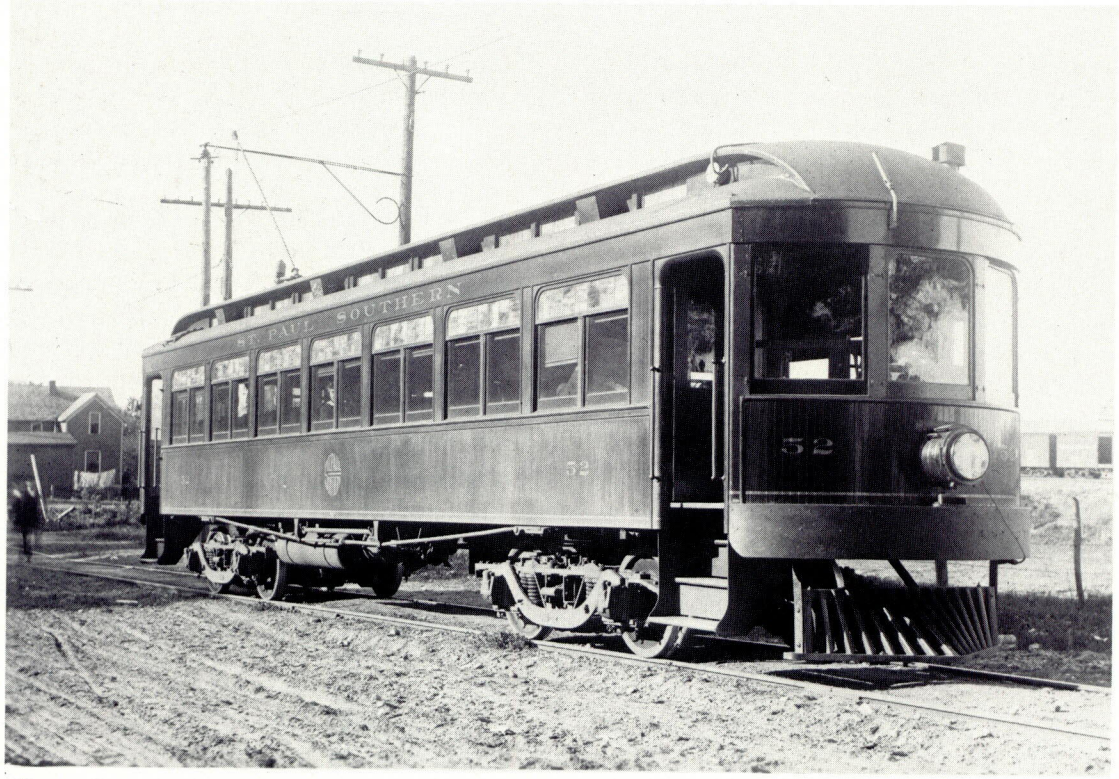
1. a short section of the MA & CR main line from the G.N. Ry. connection to Pierce St., with one siding to a lumber yard;
2. that part of the original Lincoln Mill spur track from the G.N. Ry. connection to Harrison St.; and
3. a siding built by the G.N. Ry. in 1944 serving a building materials company.

MA & CR trackage acquired from FMC Corp. was drastically reduced over the next few years.

1. In 1968 the G.N. Ry. connecting track to the filtration plant siding was removed and relocated south of the water softening plant siding to facilitate switching at the two plants.
2. In May, 1969, 6726' of track was taken up from station 102 + 00 (about 400' north of the filtration plant siding switch) to station 169 + 26 at Fridley, plus the two lead tracks (south end and north end) into the FMC Corp. plant. (All switching for the plant was to be handled from the existing G.N. Ry. lead track in the northeast corner of the plant property.)
3. The remainder of the MA & CR track south of the new G.N. Ry. connection to the Soo Line Ry. connection remained unused but intact until finally abandoned in 1971.

Thus only a few industrial sidings are the remainder of a once proud electric railway.

Snow plow 110 and two rehabilitated flat cars at work removing the rails between Nelson station and Anoka on November 24, 1943. This scene typifies the rural side-of-the-road operation from which came the slogan "milk and cream route". (Northern Ordnance Inc.; James Foster collection)



Above: Passenger motor car 52 on side-of-the-road track along Concord St. in the village of Inver Grove.

Below: Passenger-baggage motor car 1 on the track to the carhouse at Inver Grove. The large bumpers were used at the insistence of Twin City Rapid Transit Co. to compensate for the difference in floor height between the two companies' cars. Thus in the event of collision, the interurban car would not override the floor of the city car. (TCRT)

3. ST. PAUL SOUTHERN ELECTRIC RY.

Inver Grove to Hastings, Minn.

Of the three interurban electric railways, none had greater expectations and a more dismal financial record than the St. Paul Southern Electric Ry. It exemplified the bold speculation and overly optimistic planning which characterized the early years of the interurban era.

Construction

The Interurban Construction Co. began securing right-of-way between Inver Grove and Hastings during 1911 to 1913. Hastings was the seat of Dakota County and at that time had a population of 3,983 persons. In April, 1913, the St. Paul Southern Electric Ry. Co. was incorporated in Delaware and announced intentions of constructing a high-speed electric railroad from St. Paul to Rochester, 125 miles. Promotional literature was illustrated with photographs of equipment of the Washington, Baltimore & Annapolis R.R. and stated that this type of equipment would be used to provide local and limited passenger service as well as express-baggage-mail service, less-than-carload freight and carload freight service. The projected route was through Hastings, Cannon Falls, Zumbrota, and Pine Island; a branchline was to run through Red Wing to Lake City.

Additional portions of right-of-way needed for the first section of the line between Inver Grove and Hastings were secured during 1913 in the name of the St. Paul Southern Electric Ry. Grading on this first section was started in 1913 by the Interurban Construction Co. The territory through which the line ran consisted of rolling farm and wood land on top of the limestone bluffs of the Mississippi River.

The completed section of line between Inver Grove and Hastings was 17.54 miles long; with 0.51 miles of sidings and carhouse track, total trackage was 18.05 miles. The first passenger service began November 17, 1914, and was of an irregular nature due to the lack of sufficient electrical power pending completion of a high-tension transmission line to the company's substation.

A track connection was made with the St. Paul City Ry.'s "South St. Paul-Inver Grove" line which ended at Concord and Linden Streets, South St. Paul; Linden St. was the boundary between South St. Paul and Inver Grove. Trackage rights over this line into downtown St. Paul were secured; the route through downtown was via Robert St. — 8th St. — Wabasha St. — 5th St. — Robert St. The trackage rights covered 7.31 miles of line so the total distance from downtown St. Paul to Hastings wás 24.85 miles.

First officers of the St. Paul Southern Electric Ry. were A. Hirschmann (President), Irving Todd Jr. (Vice President), Z.H. Hutchinson (Secretary-Treasurer), W.L. Sonntag (General Manager and Purchasing Agent), and H.A. Genung (Chief Engineer).

Passenger Equipment

Four interurban cars were received during 1914 from the Niles Car Company of Niles, Ohio, at a cost of $8,490.00 each. 1 and 2 were combination passenger-baggage motor cars and 51 and 52 were passenger motor cars. All were of wood construction with wooden underframes. Each measured 51'0" long, weighed 29 tons, and was equipped with Baldwin 75-25-A trucks, four Westinghouse 306CA2 motors (70 h.p. each), and K type controller. Gearing was for a maximum speed of 55 miles per hour. Seating capacity was 48 persons in the passenger-baggage cars and 54 persons in the passenger cars. All four cars were fitted with toilets. Snow plow attachments were fitted to the pilots in winter months.

The carhouse (one car capacity) was located at Faulkner Ave. and Francis St., Inver Grove. Servicing and minor repairs were done here. Major repairs were performed for the company by the Twin City Rapid Transit Co. at its Snelling Shops in St. Paul.

Power Generation and Distribution

Electricity was purchased from the River Falls Power Co. (later acquired by Northern States Power Co.) via a 33,000 volts A.C. transmission line constructed along the right-of-way from Hastings to Pine Bend. A substation was built at Pine Bend where the A.C. was converted to 600 volts D.C. Accounts vary as to the substation equipment: (a) one Westinghouse 600 KW motor-generator set; (b) one Westinghouse 300 KW motor-generator set; (c) one Westinghouse 300 KW motor-generator set and one Westinghouse 300 KW rotary converter.

A company-owned house was built adjacent to the substation where the chief engineer (substation operator) resided.

Catenary overhead construction was used on private right-of-way and span wire construction on street trackage.

ST. PAUL SOUTHERN ELECTRIC RY.

J. J. McDONALD, Supt., Hastings, Minn.

—HOURLY SERVICE— All Cars Run Daily					Miles	5-7-1916	—HOURLY SERVICE— All Cars Run Daily						
29	27	8 to 25		1		540	2	6	8 to 28		80	82	84
11 10	6 40	Cars leave ST. PAUL every hour for HASTINGS on Corresponding Schedule		5 40	0	Lv. St. Paul. 247 281. Ar	5 40	7 40	Cars leave HASTINGS every hour for ST. PAUL on Corresponding Schedule		7 40		
11 16	6 46			5 46	1	5th & Robert	5 34	7 34			7 34	C	C
11 40	7 10			6 10	5	South St. Paul... 451	05 12	7 12			7 12		
11 47	7 17			6 17	8	Inver Grove 200	5 05	7 06			7 06	8	06
12 02	7 32			6 32	12	Ryan		6 56			6 56	7	56
12 04	7 34			6 34	12	Lake Park	N	6 54			6 54	7	54
12 12	7 42			6 42	14	Highland	O	6 48			6 48	7	48
12 15	7 45			6 45	18	Pine Bend	T	6 45			6 45	7	45
12 21	7 51			6 51	20	Todd	E	6 36			6 36	7	36
12 23	7 53			6 53	21	Spring Lake		6 33			6 33	7	33
12 27	7 57			6 57	23	Wilson		6 29			6 29	7	28
12 37	8 07			7 07	26	Ar. Hastings. 898	Lv	6 15			6 15	7	15

NOTE—Additional Car lv Inver Grove 6.06 am, ar St. Paul 6.40.
c No. 82 and No. 84 connect with Inver Grove car for St. Paul.

Passenger Operations

The first regular schedule operated when full power became available was as follows:

Leave Inver Grove: 7:06, 8:06, 9:06 and 10:06 A.M.; 12:06, 2:06, 3:06, 4:06, 5:06, 6:06, 7:06, 9:06 and 11:36 P.M.

Leave Hastings: 7:00, 8:00, 9:00 and 10:00 A.M.; 1:00, 3:00, 4:00, 5:00, 6:00, 7:00, 8:00 and 10:00 P.M.

On August 22, 1915, cars began operating to downtown St. Paul, running via Robert St., 7th St., Wabasha St., 5th St., Robert St.

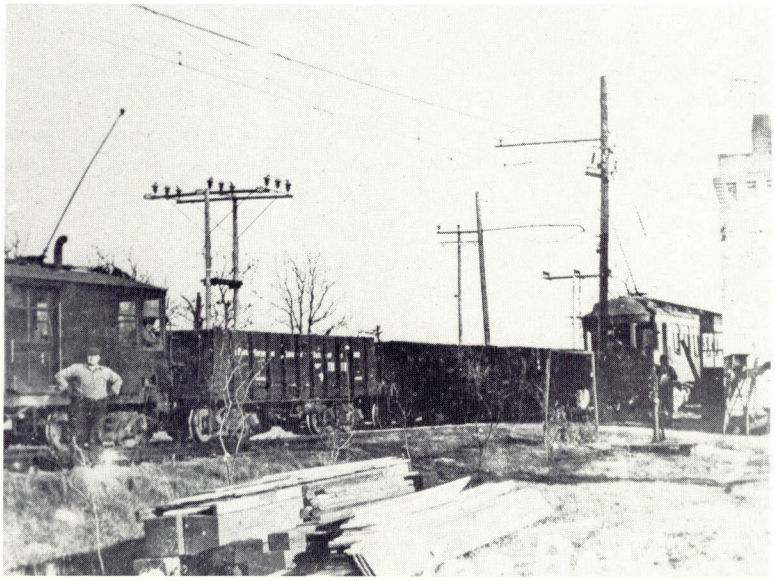
Full hourly service was eventually established. The timetable effective May 7, 1916, was typical.

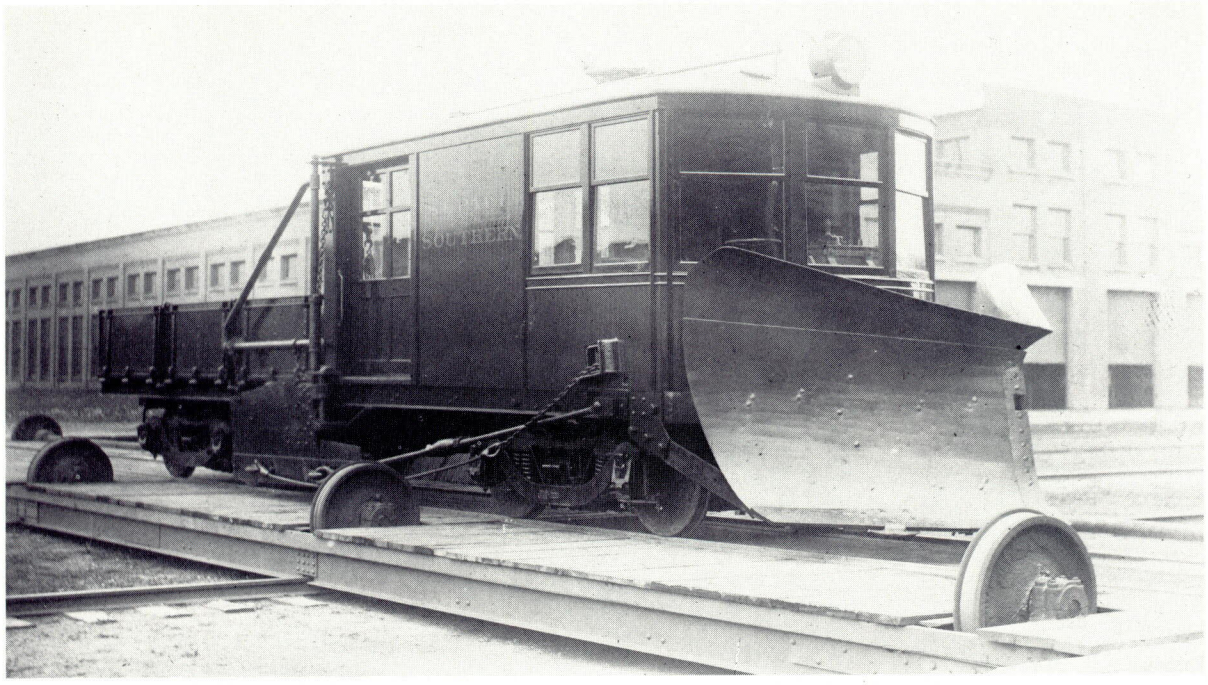
The overall schedule speed was 18 miles per hour. Employees recall that the normal top speed was usually 35 to 40 miles per hour; and that due to weak power on the Hastings end of the line only 10 miles per hour could be attained when ascending the long 2½% grade (called Featherstone Hill) west of Hastings. Hourly service required three cars with meeting points at South St. Paul (on St. Paul City Ry. tracks) and Pine Bend. The last passenger run of the evening arrived in Hastings after midnight. The car was stored on the north leg of the wye overnight and made the first run out of Hastings in the morning. Passengers were transferred to a waiting second car at the Inver Grove carhouse so that the first car could be pulled in for inspection and servicing. Express, package freight and baggage were carried on all passenger runs.

On subsequent timetables the regular passenger stops between South St. Paul and Hastings were listed as Inver Grove, Birch Lake, Ryan, Highland, Pine Bend, Brown's Crossing, Tyner, Spring Lake, and Wilson. Small frame passenger shelters were located at Birch Lake, Ryan, Highland and Wilson. Flag stops were made just about anywhere, according to employees, as in many cases farmers granted right-of-way under the provision that cars would make stops for them on their property. The passenger depot and company offices were located on the first floor of a two-story, red brick building at 315 E. 2nd St., Hastings; the depot included a waiting room, express and baggage room at the rear, and a small room for use of crews during layover times.

Numerous fishermen rode the cars in winter and summer to Spring Lake, a widening of the Mississippi River, noted for good fishing and picnic outings. Employees recall that special cars were sometimes run for fishermen, as well as for St. Paulites attending masquerade dances held in Hastings. Rural children rode the cars from outlying farms to school in Hastings. The line passed by the domed, ornate, Victorian-style county courthouse on Vermillion St. in Hastings, which resulted in considerable patronage for the company.

The work car-snow plow-locomotive pulling the entire fleet of company-owned gondola cars meets a Hastings bound passenger car at the Pine Bend substation. (Joe Hutchinson collection)





Freight and Work Equipment

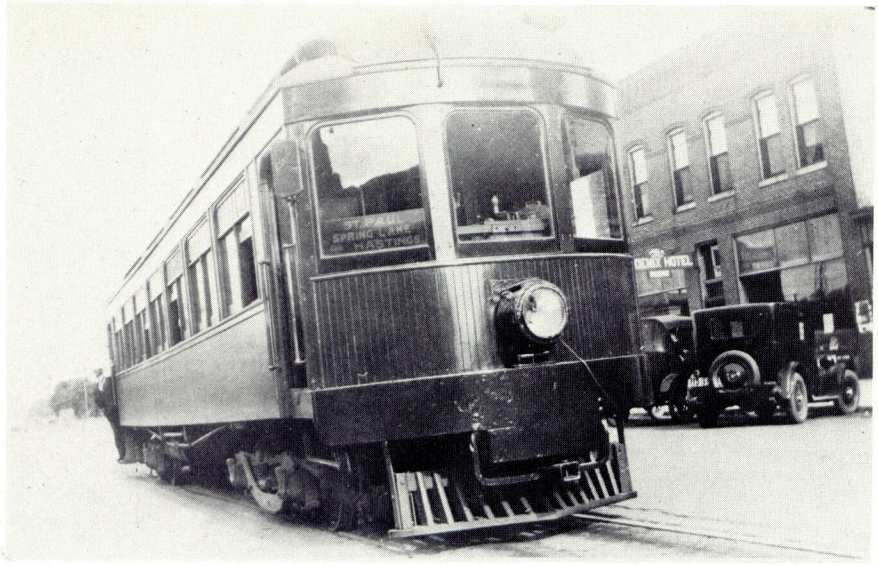
Passenger-baggage car 1 was destroyed by fire in early 1917. Negotiations were entered into with Twin City Rapid Transit Co. for construction of a combined snow plow-work car-locomotive, using the salvaged trucks and motors from 1. For economy reasons it was decided to use the same set of drawings, with minor modifications, that was used for the construction of the University of Minnesota switch car. TCRT completed the car, which carried no number, on October 15, 1917, at a cost of $6,487.68. The car was 40'0" long over-all, 37'0" long over the body (the cab being 18'6½" long), 9'6" wide, and weighed 56,200 pounds. Equipment consisted of Baldwin 75-25-A trucks, 4 Westinghouse 306CA2 motors, one General Electric K-14 controller, automatic couplers, and Westinghouse automatic air brakes for train operation. Capacity of the car was listed as 30,000 pounds. The snow plow and wing plow were detachable.

During 1918 four railroad drop-bottom gondola trailers, built prior to 1895, were acquired second-hand for $750.00 each. They were assigned numbers 101-104.

The interchange track with the Chicago Great Western Ry. at Inver Grove was presumably used for handling construction materials used for building the line. An occasional carload of coal for heating the Pine Bend substation was received on this track. A gravel pit at the western edge of Hastings was served by a spur track, but apparently only gravel for track ballast was hauled. There is no evidence that any kind of freight operations were carried on.

Above: Builder's photograph of the work car-snow plow-locomotive on the transfer table at the Snelling Shops, October, 1917. (TCRT)

Below: This view of the snow plow on the Hastings wye indicates it was necessary to board over the windows on the front end to prevent glass breakage when plowing out deeply drifted cuts. (Joe Hutchinson collection)



One of the passenger motor cars nears the end of a run, on 2nd St. in Hastings. On all three cars, in later years, the steps were removed from all except the rear "gate side" door. (Joe Hutchinson collection)

Financial Complications

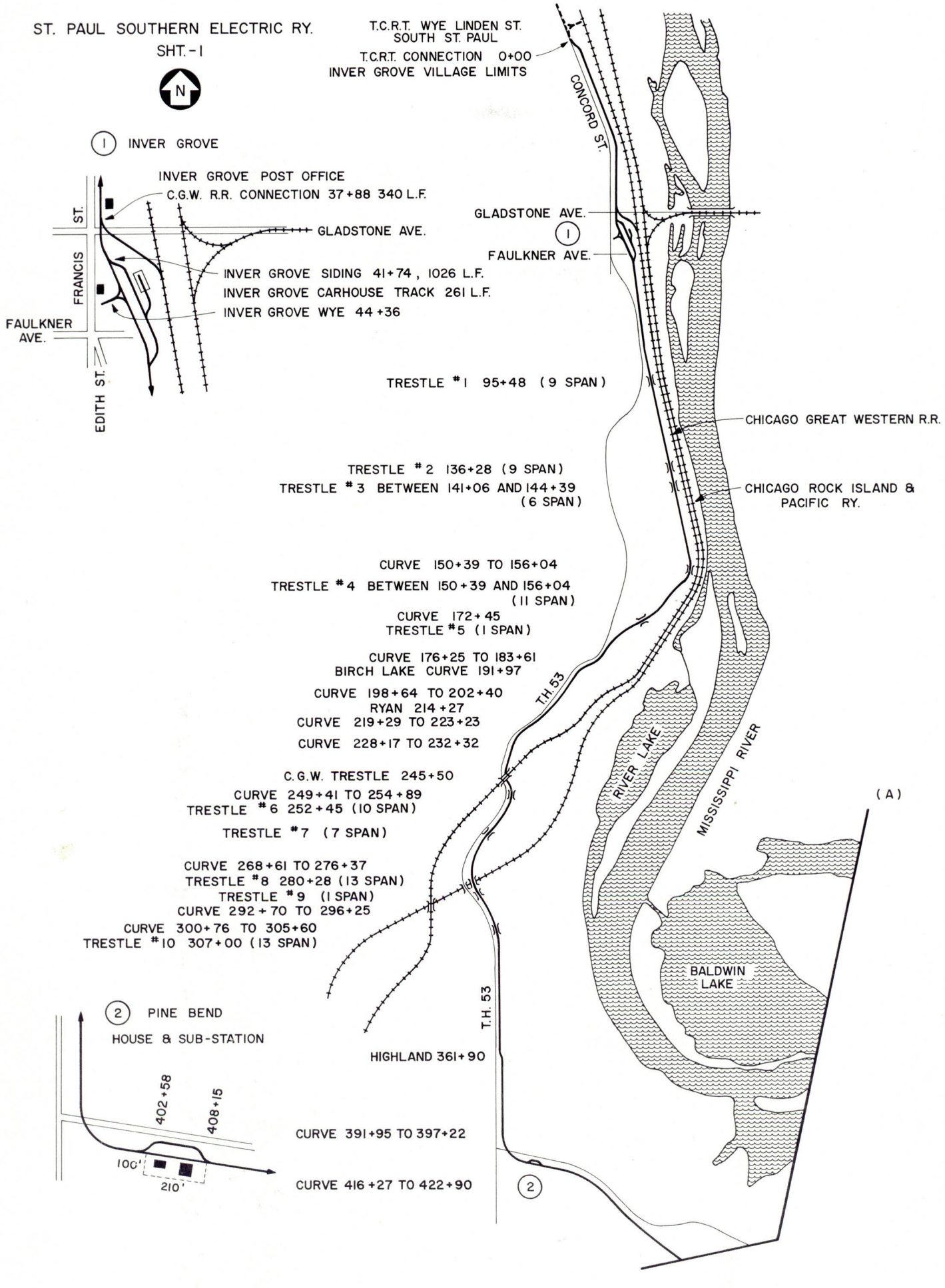
The first annual report, as of December 31, 1915, stated that grading was in process on the second section of the main line between Hastings and Zumbrota. Most of this activity took place on the 23 mile stretch between Hastings and White Rock; employees state that grading went through Miesville as far as Cannon Falls. (All of this work was done by earth scrapers and graders pulled by horses.) The October, 1915, issue of Electric Railway Journal reported that grading was proceeding on the 34 miles from Hastings to Zumbrota. The company was considering an offer to lease 25 miles of CGW or C & NW Ry. track from Zumbrota to Rochester. If the lease could not be consummated the company expected to finish grading by May 1, 1916, and to operate by December 1, 1916.

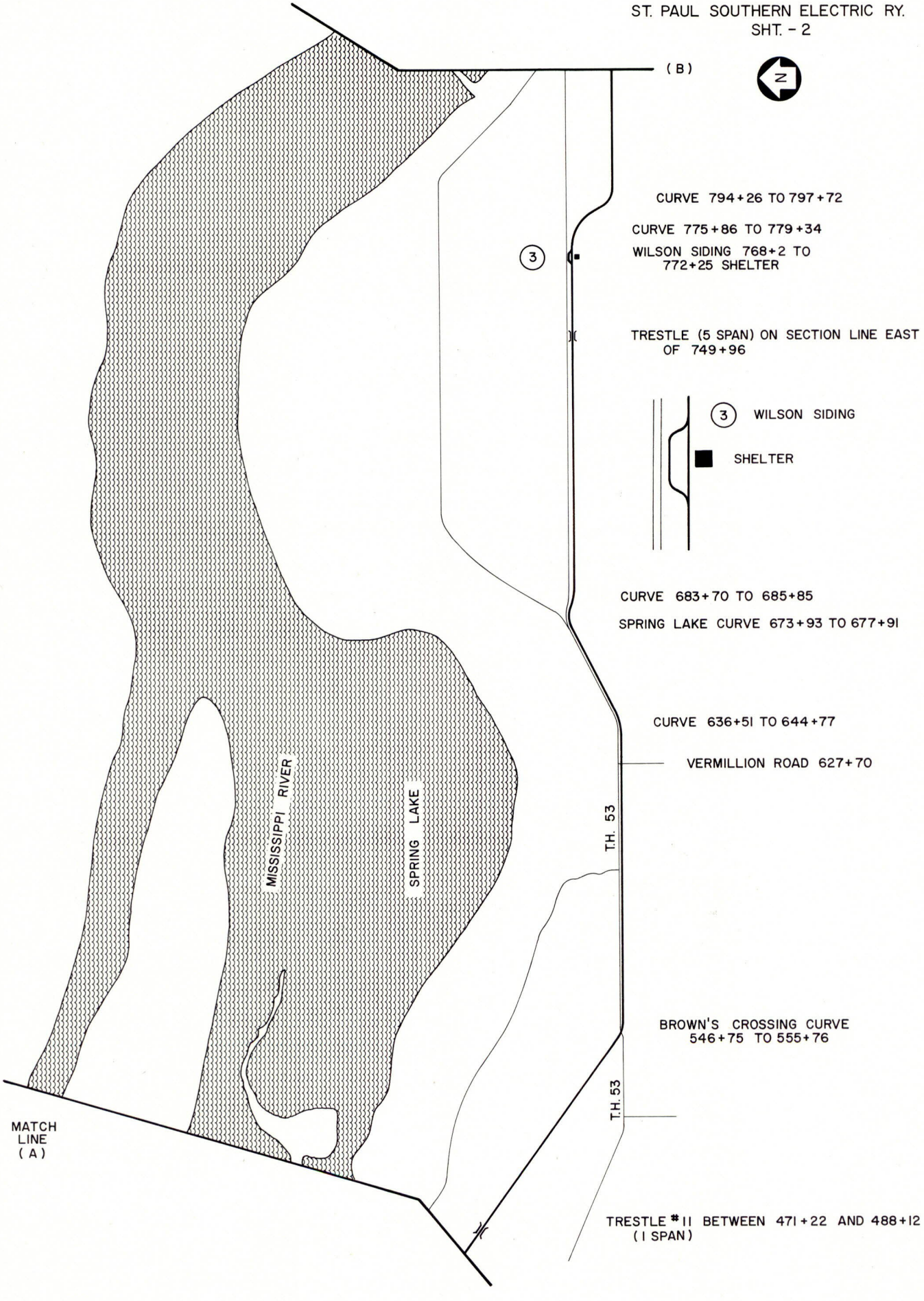
By January, 1917, over 900 persons were stockholders in the company. Officers and directors of the company during the first several years were: Irving Todd, Jr. (President), Otto Ackerman (Vice President), R.M. LaBelle (Secretary-Treasurer, General Superintendent, and Purchasing Agent), C.P. Kuckler (Auditor). A.R. Waldridge (General Manager), Louis Hoffman (Electrical Engineer and Master Mechanic), P.E. Sievert (Chief Engineer-Power Station), and Carl Erickson (Engineer-Maintenance of Way). Directors were Irving Todd, Jr., Otto Ackerman, E.E. Tuttle, T.A. Brown, F.W. Finch, (all of Hastings), F.B. Seager (Cannon Falls), T.H. Bunn (Pine Island), and A. Hirschmann (St. Paul).

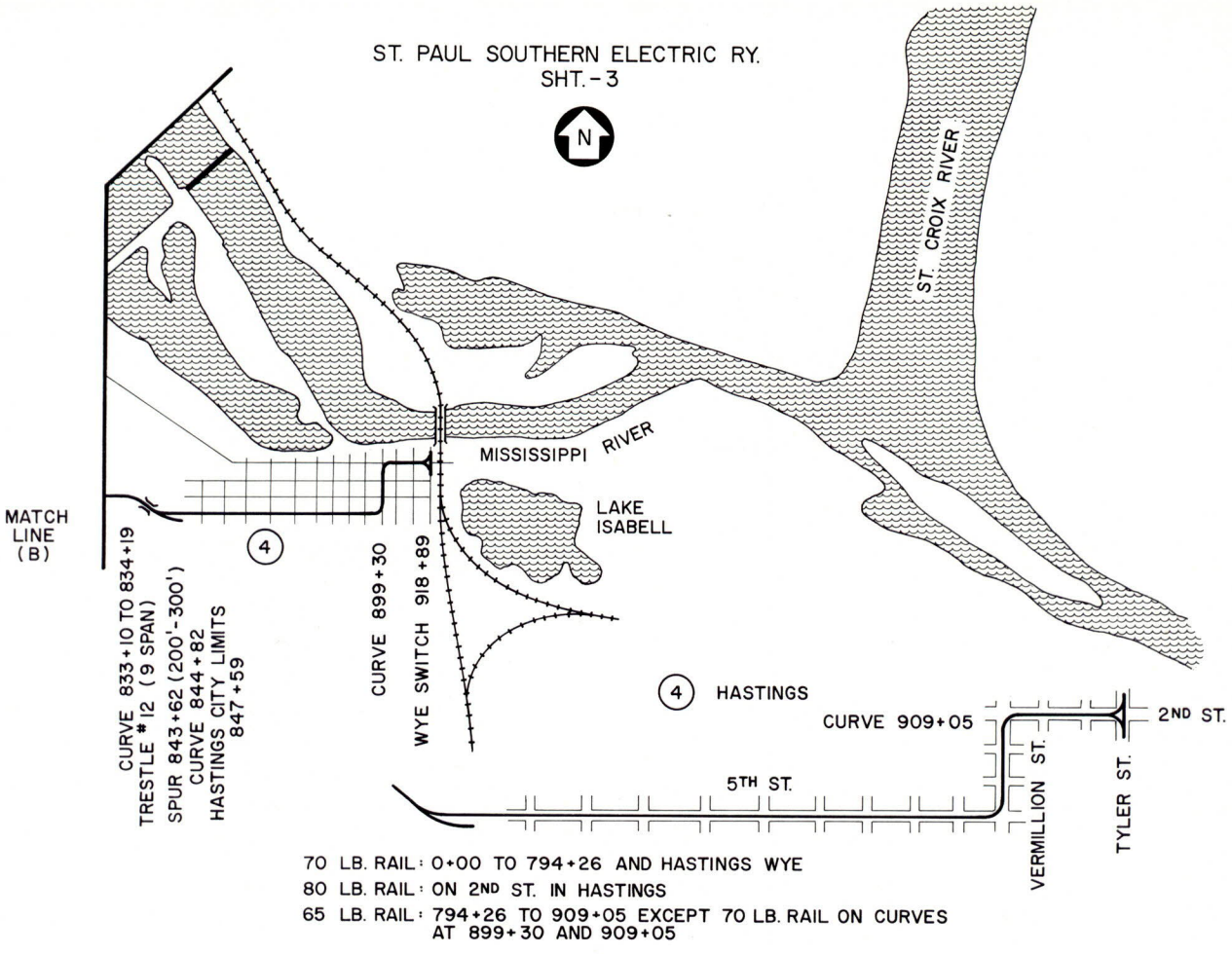
Minnesota was not on the receiving end of defense spending during World War I and no increases in passenger traffic were experienced. The company sustained continuous annual financial losses culminating in receivership on (February?) September 28, 1918. Although various directories of this period of time listed the Hastings-White Rock extension as still under construction, receivership shattered all of these dreams and no track was ever laid beyond Hastings.

Above: A rare view of the right-of-way between Pine Bend and Hastings, showing the catenary overhead and the snow plowing problem. (Robert Schumacher)

Below: Car 2 arrives in Hastings after a bitter battle with heavy snow. Note the snow plow pilot and the boarded-up windows on the front platform. (Robert Schumacher)


ST. PAUL SOUTHERN ELECTRIC RY.
SHT. - 1
N
T.C.R.T. WYE LINDEN ST. SOUTH ST. PAUL
T.C.R.T. CONNECTION 0+00
INVER GROVE VILLAGE LIMITS
CONCORD ST.
1 INVER GROVE
INVER GROVE POST OFFICE
C.G.W. R.R. CONNECTION 37+88 340 L.F.
GLADSTONE AVE.
FRANCIS ST.
INVER GROVE SIDING 41+74, 1026 L.F.
INVER GROVE CARHOUSE TRACK 261 L.F.
INVER GROVE WYE 44+36
FAULKNER AVE.
EDITH ST.
GLADSTONE AVE.
1
FAULKNER AVE.
TRESTLE #1 95+48 (9 SPAN)
CHICAGO GREAT WESTERN R.R.
TRESTLE #2 136+28 (9 SPAN)
TRESTLE #3 BETWEEN 141+06 AND 144+39 (6 SPAN)
CHICAGO ROCK ISLAND & PACIFIC RY.
CURVE 150+39 TO 156+04
TRESTLE #4 BETWEEN 150+39 AND 156+04 (11 SPAN)
CURVE 172+45
TRESTLE #5 (1 SPAN)
CURVE 176+25 TO 183+61
BIRCH LAKE CURVE 191+97
CURVE 198+64 TO 202+40
RYAN 214+27
CURVE 219+29 TO 223+23
CURVE 228+17 TO 232+32
TH. 53
C.G.W. TRESTLE 245+50
CURVE 249+41 TO 254+89
TRESTLE #6 252+45 (10 SPAN)
TRESTLE #7 (7 SPAN)
CURVE 268+61 TO 276+37
TRESTLE #8 280+28 (13 SPAN)
TRESTLE #9 (1 SPAN)
CURVE 292+70 TO 296+25
CURVE 300+76 TO 305+60
TRESTLE #10 307+00 (13 SPAN)
RIVER LAKE
MISSISSIPPI RIVER
(A)
BALDWIN LAKE
T.H. 53
2 PINE BEND
HOUSE & SUB-STATION
402+58
408+15
100'
210'
HIGHLAND 361+90
CURVE 391+95 TO 397+22
CURVE 416+27 TO 422+90
2


ST. PAUL SOUTHERN ELECTRIC RY.
SHT. - 2
(B)
N
CURVE 794+26 TO 797+72
CURVE 775+86 TO 779+34
WILSON SIDING 768+2 TO 772+25 SHELTER
3
TRESTLE (5 SPAN) ON SECTION LINE EAST OF 749+96
3 WILSON SIDING
SHELTER
CURVE 683+70 TO 685+85
SPRING LAKE CURVE 673+93 TO 677+91
CURVE 636+51 TO 644+77
VERMILLION ROAD 627+70
T.H. 53
MISSISSIPPI RIVER
SPRING LAKE
BROWN'S CROSSING CURVE 546+75 TO 555+76
T.H. 53
MATCH LINE (A)
TRESTLE #11 BETWEEN 471+22 AND 488+12 (1 SPAN)



The Tourists' Cafe in Hastings.

THE HOME CAFE

A. B. MICHAELSON, Prop.

Phone 3411

316 E. Second Str. Meals—Lunches—Ice Cream—Cigars—Candy Hastings, Minn.

HASTINGS—to—SAINT PAUL

LEAVE Hastings	ARRIVE Inver Grove	ARRIVE South St. Paul	ARRIVE St. Paul
LV	AR	AR	AR
	†6:21AM	6:30AM	6:50AM
6:30AM	7:14AM	7:22AM	7:40AM
8:30AM	9:14AM	9:22AM	9:40AM
9:40AM	10:24AM	10:32AM	10:50AM
11:30AM	12:14PM	12:22PM	12:40PM
1:30PM	2:14PM	2:22PM	2:40PM
3:35PM	4:20PM	4:28PM	4:48PM
4:35PM	5:20PM	5:28PM	5:48PM
6:35PM	7:20PM	7:28PM	7:48PM
*7:30PM	8:14PM		
9:40PM	10:24PM	10:32PM	10:50PM

†Leaves Inver Grove Shops at 6:17 A. M. for St. Paul.
*Connects with Twin City Car at Inver Grove Wye.

ST. PAUL—to—HASTINGS

LEAVE St. Paul 7 & Wab	ARRIVE South St. Paul	ARRIVE Inver Grove	ARRIVE Hastings
LV	AR	AR	AR
7:05AM	7:25AM	7:35AM	8:15AM
8:05AM	8:25AM	8:35AM	9:15AM
10:05AM	10:25AM	10:35AM	11:15AM
11:05AM	11:25AM	11:35AM	12:15PM
1:07PM	1:27PM	1:35PM	2:15PM
3:07PM	3:27PM	3:35PM	4:20PM
5:07PM	5:27PM	5:35PM	6:20PM
6:07PM	6:27PM	6:35PM	7:20PM
8:05PM	8:25PM	8:35PM	9:15PM
11:15PM	11:35PM	11:43PM	12:20PM

Spend your outing at Spring Lake. Good fishing.
Express and Package carried on all Passenger Cars between St. Paul and Hastings.

At the End of the Line You'll Find

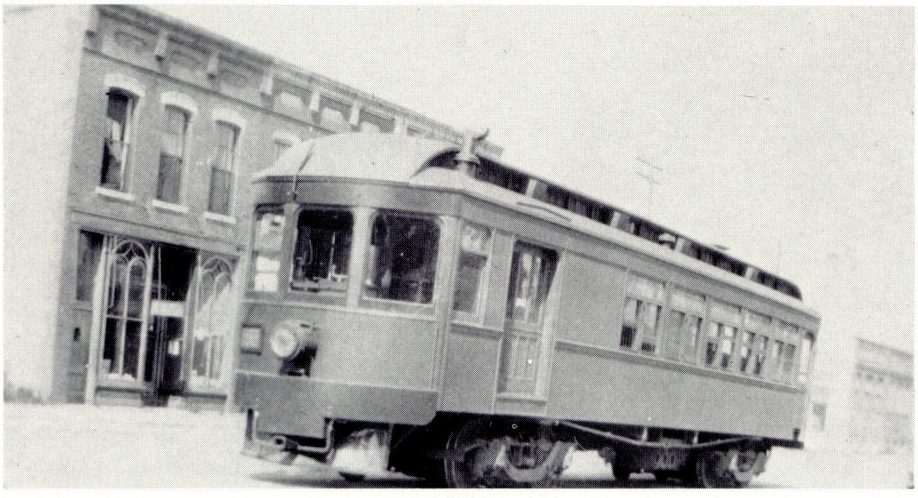
THE HASTINGS HOTEL

WM. RADKE, Prop.

Every Comfort of Home at Moderate Prices

Board and Room by the week—$7 Board and Room by the Day—$1.50

Tobacco, Cigars, Cigarettes and Candy.



(Robert Schumacher collection)

Decline and Abandonment

The Receiver had borrowed additional funds on the expectation of putting the company on a profitable basis in the years of prosperity after World War I. However paved roads were soon constructed between St. Paul and Hastings on both sides of the Mississippi River and automobiles began taking away more and more of the passenger traffic. Competing motor bus lines were allowed to begin operations and granted equal schedule rights by the Minnesota Railroad and Warehouse Commission. The company struggled to meet the competition. The Receiver continued to be a staunch company supporter; for example E. E. Tuttle was Receiver, General Manager and Purchasing Agent in 1923; C.P. Kuckler was Auditor and Assistant General Manager in 1923 and by 1926 was the Receiver.

A St. Paul newspaper of February 5, 1924, reported that the company was on the verge of financial ruin. However the timetable effective December 27, 1926, indicates ten daily round trips, nearly as much service as the first regular schedule operated. The downtown St. Paul route had been reported changed previously to Robert St. — 3rd St. — Sibley St. — 5th St. — Robert St., but this 1926 timetable seems to indicate that the original route was again in effect. The meeting point for the two cars used on this schedule was at Pine Bend.

Lack of funds drastically reduced the amount of maintenance that could be performed and the physical condition of the cars and tracks steadily deteriorated. It is not known whether one-man operation of the cars was ever undertaken. The last timetable issued, effective May 15, 1928, indicates that by this time service had been substantially reduced to five daily round trips plus an additional trip on Saturdays and Sundays only. Shortly thereafter it was announced that the company was hopelessly insolvent; the Receiver had no funds even for daily operations. The last passenger car pulled into Hastings on Tuesday, July 31, 1928, at 9:15 P.M. ending the southernmost interurban operation in Minnesota as well as a short but colorful era in Dakota County history.

The St. Paul City Ry. then extended its "South St. Paul-Inver Grove" line from Concord and Linden Streets over the St. Paul Southern Electric Ry. trackage to the carhouse wye at Faulkner Ave. and Francis St., Inver Grove.

Property of the St. Paul Southern Electric Ry. was sold at public auction on August 23, 1928, at which Paper, Calmenson & Co. of St. Paul submitted the highest bid of $34,200. The B.W. and Leo Harris Company began removal of the rail and overhead, starting in Hastings on October 24, 1928. Equipment was stored at the Inver Grove carhouse for some time, the three passenger cars eventually being scrapped and the snow plow-work car-locomotive sold in 1929 to the Minneapolis, Anoka & Cuyuna Range R.R. Co.

The depression reduced passenger traffic to the point that the St. Paul City Ry. decided to discontinue operation over the former St. Paul Southern trackage. The last car left the wye at Faulkner Ave. and Francis St. at 11:32 P.M., Friday, October 13, 1933.

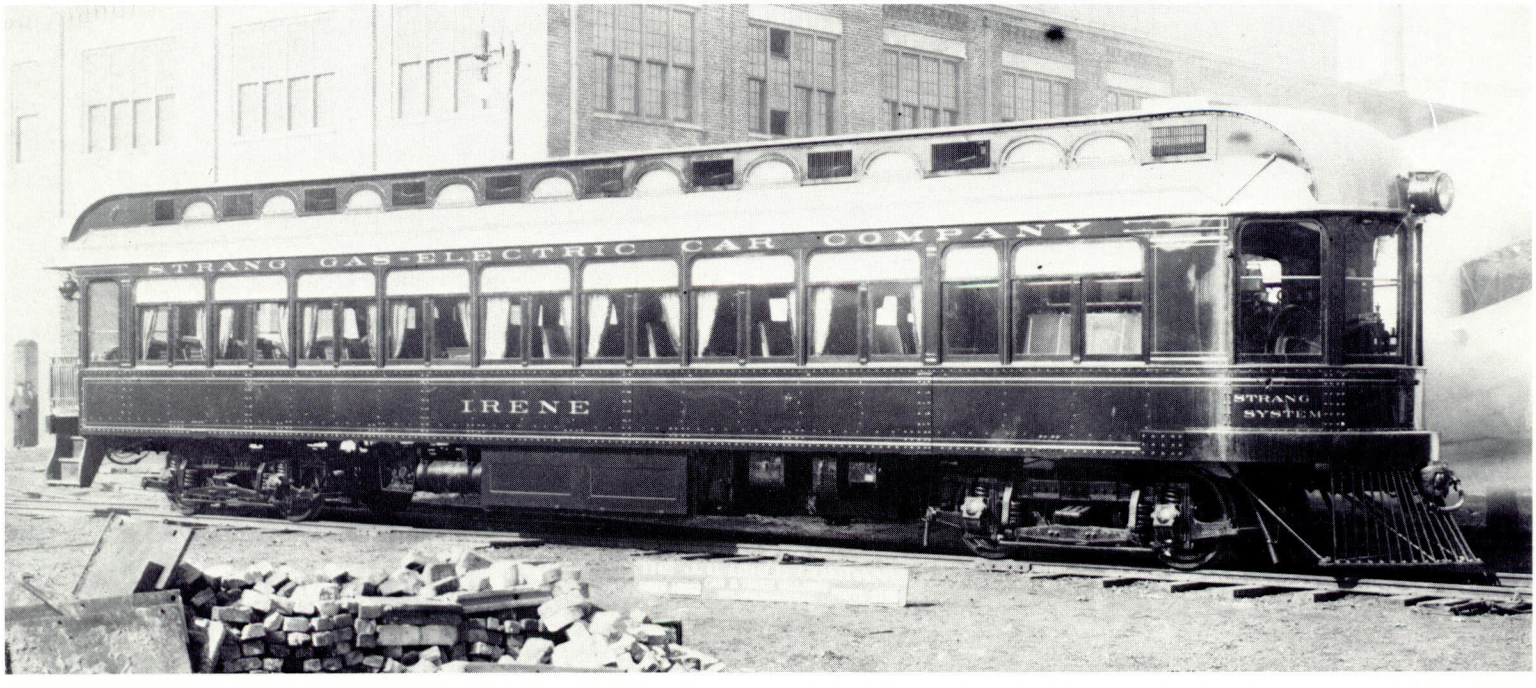
Trackage from Concord and Linden to Faulkner and Francis was removed, with the exception of several hundred feet constituting the connection from SPCR's wye at Concord and Linden to the former location of the side-of-the-road trackage along Concord St.; this track remained in place, unused, until 1952 when the "South St. Paul-Inver Grove" line was abandoned.

The abandoned substation building at Pine Bend stood unused and derelict until the middle 1950's when it was demolished to make way for development of an industrial park by the Chicago Great Western Ry. The only remaining traces of The St. Paul Southern Electric Railway are sections of the roadbed in various locations, overgrown with trees and brush but still recognizable to the discerning eye, a reminder of once grandios plans that never fully materialized.

SECTION V
INTERURBAN RAILWAYS OPERATED WITH GASOLINE-ELECTRIC RAILCARS

These companies are included in this publication for several reasons:

1. They were included in the U.S. Census compilations of data on electric railways.
2. The equipment differed from electric railway cars only in that each car carried a self-contained power plant; that is, a gasoline motor driving an electric generator which supplied electricity to the traction motors on the car trucks.
3. The companies included operated exclusively for a period of years with this type of equipment; one of them being the first in the United States to operate both passenger and freight service with such equipment.



J. G. Brill Co. photograph of gasoline-electric car "Irene" built for the Strang Gas-Electric Car Co. which was subsequently acquired by the Dan Patch Electric Lines. (Historical Society of Pennsylvania)

MINNEAPOLIS, ST. PAUL, ROCHESTER & DUBUQUE ELECTRIC TRACTION CO.

(Dan Patch Electric Lines)
Minneapolis to Northfield, Minn.

Col. Marion W. ("Will") Savage was the founder and owner of the International Stock Food Co. which manufactured livestock feed, animal medicines and other articles used on farms; it was the largest firm of its kind in the world as much of its business was conducted on a mail order system. Col. Savage had started the business in Dubuque, Iowa; coming to Minneapolis in 1886 he also organized the International Sugar Feed Co. About 1900 he purchased a 750 acre farm near Hamilton, Minnesota (later re-named Savage in his honor) and constructed on it a huge and ornate racing stable. To publicize his stock feed and to fulfill a lifetime dream he began to stock the farm with champion race horses. His success was due to a seemingly natural talent for advertising, sales promotion and showmanship. In an era when the horse was an important part of the daily life, many people were interested in horses. At state fairs horse shows were popular attractions. The Colonel reasoned that his champion horses would have an admiring audience consisting of the farmers who were his stock feed customers. Before the end of 1902 he had purchased for $60,000 (at the time the highest price ever paid for a horse) the sensational pacer Dan Patch, perhaps the most famous race horse of all time.

Until Dan Patch was retired in 1910 he traveled to fairs and exhibitions all over the U.S. and Canada in a white private railroad car, attended by white-uniformed grooms. He established many records before huge crowds, which were reminded incessantly that the horse was fed on Savage's "Three Feeds for One Cent". Sales rapidly increased. Dan Patch enjoyed the challenge of a race, loved crowds, and never failed to give a great performance. He was gentle, good-spirited, and possessed a high degree of intelligence, all of which made him extremely popular with his admirers. Every year thousands of people traveled to the stock farm to see Dan Patch.

An easterner, William P. Mason, had approached Col. Savage with a proposal to build a railroad from Minneapolis to the stock farm 20 miles south of the city. After studying the proposal, the Colonel became convinced not only of its promotional value but also of its potential as a common carrier serving southern Minnesota and northern Iowa. This rolling section of Minnesota is prosperous with grain fields, dairy and truck farms, and numerous thriving towns and cities of varied industrial activity. The Minneapolis, Rochester & Dubuque Traction Co. was incorporated in New Jersey during 1906 and began acquiring the right-of-way.

The Minneapolis, St. Paul, Rochester and Dubuque Electric Traction Co. was incorporated in Maine during September, 1907, by E.W. Freeman, E.L. Rackcliff, F.V. Matthews (all of Portland, Maine), M.W. Savage, W.D. Boutell, E.B. Savage, T.W. Stevenson, M.H. Boutelle and D.W. McKenna (all of Minneapolis). On October 12, 1907, it purchased the right-of-way from the Minneapolis, Rochester & Dubuque Traction Co. Interurban electric railway technology had been selected with high-speed freight and passenger service planned. It was planned to build first from Minneapolis to Rochester (via Northfield, Faribault and Owatonna) connecting with another proposed line from Rochester through Decorah, Iowa, to Dubuque. At Dubuque connections were to be made with an electric line building from Chicago to Dubuque (Rockford & Interurban Electric Ry.). A 24 mile line was also planned from St. Paul through South St. Paul, Inver Grove, and Rosemount, to Antlers, a junction point on the Minneapolis-Rochester main line at Lake Marion near Lakeville.

Actual construction began June 10, 1908, on the portion from Minneapolis to Northfield. The route was from 50th St. and Nicollet Ave. in Minneapolis, south and west to the bluffs where it descended a 2% grade into the wooded Minnesota River valley (crossing the river on a swing bridge), and then south through Savage and Lakeville to Northfield. According to a map dated September, 1909, grading had been completed from Minneapolis to Crystal Lake (north of Lake Marion) and from Lakeville to Northfield; grading was in progress on the section from Crystal Lake to Lakeville.

A promotional brochure issued in 1910 stated that from the very beginning of construction only the best of materials and labor were employed, the highest standards observed, with all construction work being performed by the company itself. As examples the following were listed:

1. All track located on private right-of-way (50' wide from Minneapolis to the Minnesota River and 66' wide south of there).
2. Maximum grade of 1.5% allowing for a design speed of 65 m.p.h.
3. All cuts excavated for double track.

4. Trestles built of steel and steel piles filled with concrete.
5. Bridges, cattle passes and culverts (17 structures) built of reinforced concrete designed for double tracks.
6. 80 lb. steel rails laid on 6" x 8" x 8' white oak, tamarack and cedar ties placed on 12" of ballast.
7. Unrestricted handling of freight planned.

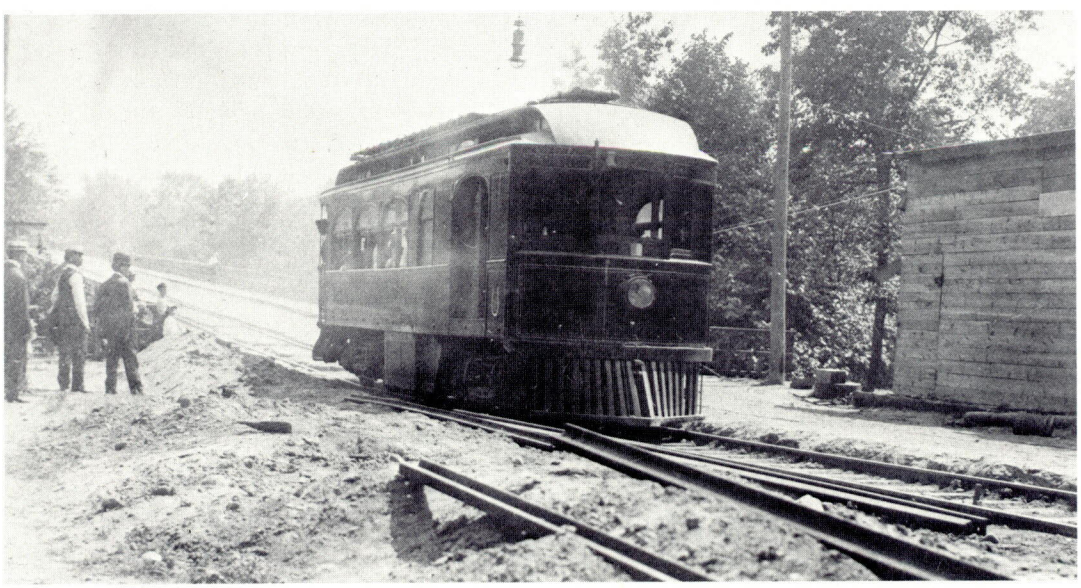
The bridge over the Minnesota River contained a 250' draw span and cost $50,000.00. The fill across the river valley was 3,754' long and 20' high, containing 75,000 cubic yards of earth.

Tentative arrangements had been made with the Twin City Rapid Transit Co. for trackage rights into the city proper in both Minneapolis and St. Paul. The company acquired 237 acres of land at Antlers on the shore of Lake Marion. 40 acres was reserved for a terminal, park, picnic grounds and hotel site; the remainder was platted for a town site and lots offered for sale. A summer resort currently located at Antlers had not been properly developed according to the brochure. Photograph captions stated grading crews were at work near Owatonna, Dodge Center, and Kasson, all on the portion of the line between Northfield and Rochester. The officers of the company were listed as: M.W. Savage (President and Treasurer), J.B. Bradshaw (First Vice President), W.D. Boutell (Second Vice President), E.B. Savage (Third Vice President), and M.H. Boutelle (Secretary). Directors were: M.W. Savage, W.J. Morris (International Sugar Feed Co., Minneapolis), M.H. Boutelle (corporation attorney, Minneapolis), J.B. Bradshaw (Bradshaw Brothers, Minneapolis), W.D. Boutell (Boutell Brothers, Minneapolis), Carlos N. Boynton (Church & Co., railroad constructionists, St. Paul), H. Wehman (Minneapolis Chamber of Commerce), John Gorrien (contractor and real estate dealer, Minneapolis), and E.B. Savage (proprietor of International Stock Food Co., Toronto Canada, and vice president of International Sugar Feed Co., Minneapolis).

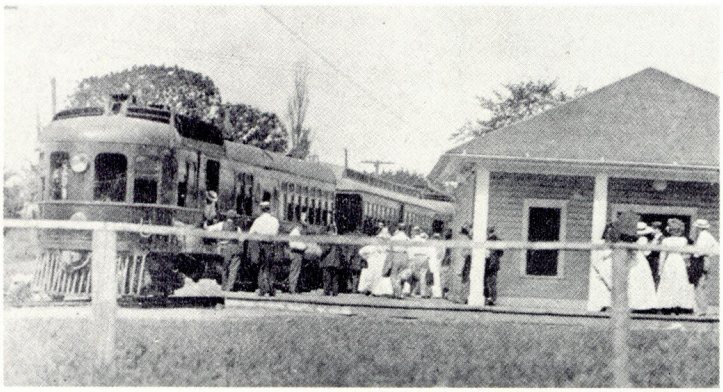
Apparently the fund raising programs were slow in reaching the goals necessary to finance the expensive construction and extensive grading operations undertaken. A decision was made to operate the line with gasoline-electric motor cars in order to begin service.

Enough rail had been laid to allow passenger operations to begin on July 4, 1910, from Minneapolis to Lakeville. (Minnesota Railroad & Warehouse Commission records indicate the line was completed from Minneapolis (50th St.) to Savage (12.38 miles) on July 1, 1910.) The magic of the Dan Patch name was applied to the railroad to promote passenger traffic; the new line was promptly christened the "Dan Patch Electric Lines" and a herald designed depicting a bolt of lightning superimposed on a horseshoe. Equipment consisted of two gas-electric passenger motor cars. Connections were made at 50th St. and Nicollet Ave. in Minneapolis with streetcars of the Minneapolis St. Ry.'s "First Ave. So." line; the gas-electric cars did not operate over MSR trackage. Rail laying was completed between Lakeville and Northfield and passenger service extended to Northfield on December 1, 1910. A third gas-electric passenger motor car was acquired to augment the other two cars.

A connection at Northfield with the Chicago Great Western Ry., called the Ellison line (1.69 miles), was completed in 1911. On March 1, 1911, the track on Nicollet Ave. from 50th St. to 54th St., Minneapolis, (0.512 miles) was sold to the Minneapolis St. Ry. which proceeded to electrify this portion and to construct a wye at 54th St. Additional gasoline-electric passenger motor cars



Passenger car 1, "Ogerita", southbound on Nicollet Ave., Minneapolis, at the bridge over Minnehaha Creek near 54th St., 1911. (Minnesota Historical Society collection)

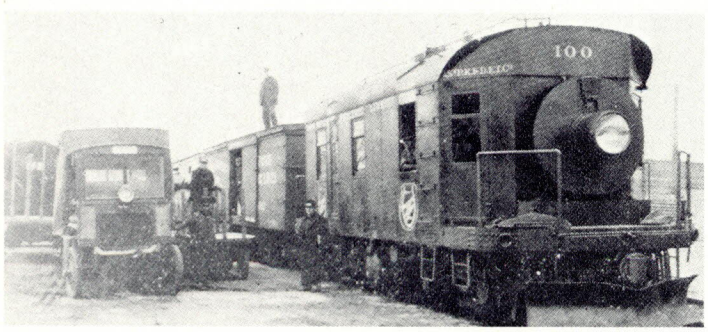


Passenger car 4 or 5, pulling a former elevated railway trailer, makes a passenger stop at a country station. (Byron D. Olsen collection)

were acquired. Thus as of June 30, 1911, the Dan Patch Electric Lines consisted of: 37.34 miles of line from Minneapolis (54th St. & Nicollet Ave.) to Northfield (including the Ellison line) completed at a cost of $1,004,776.70; seven gasoline-electric passenger motor cars; one 32' x 135' car storage building at 60th St. and Nicollet Ave., Minneapolis (completed 1911); and one 33' x 80' two-stall carhouse (frame and corrugated iron) at Northfield (completed 1910). A waiting room and ticket office were located at Savage together with a wye.

During 1911, 13 miles of right-of-way from Northfield to Faribault was purchased; subsequently more than $150,000 was expended in grading until complications arose in that the company was unable to obtain an entrance into Faribault. Consequently rails were never laid on this extension.

Northfield was thus the only significant point, other than the Savage stock farm, reached by the line, so something had to be done to stimulate passenger business. The 40 acres at Antlers were developed into a resort and recreational area. Antler's Park, as it was named, comprised an extensive complex of facilities which included:



Freight locomotive 100 pulling a train of company-owned box cars. (Navarro Fosse)

picnic kitchens (seating 50 with attached kitchenette); baseball diamond with grandstand; dancing pavilion (30' x 140') with wide porches on three sides, soda fountains and refreshment stands (music provided afternoons and evenings by the Antler's Park Orchestra); aerial swing (illuminated); club house and cafe; bathing pavillion with 250 rooms; bathers' chute on the beach; children's playground; miniature railroad connecting the pavilion and beach; cottages for weekly, monthly, or seasonal rental; and a fleet of rowboats, canoes, sailboats, launches and steamers.

Such substantial excursion traffic resulted that additional passenger equipment was purchased. As of June 30, 1912, the roster included nine gasoline-electric passenger motor cars, six passenger trailers, one baggage car and 23 freight cars, indicating that the first freight operations were begun using the passenger motor cars to pull the freight trailers.

Schedules for the year 1912 on the 37.34 mile line from 54th St., Minneapolis, to Northfield indicate that limited trains made the run in one hour and seventeen minutes (schedule speed 29.1 m.p.h.) while local trains needed one hour and thirty-five minutes (schedule speed 23.6 m.p.h.).

The Colonel was determined to attain the potential he had envisioned for his railroad. Construction was started in 1913 on an extension from Auto Club station (re-named Auto Club Junction), through the west side of suburban Minneapolis to a connection with the Electric Short Line Terminal Co. named Luce Line Junction, with the objective of reaching downtown Minneapolis over the Electric Short Line Terminal Co. trackage. Also in 1913 trackage rights were obtained over the Chicago Great Western Ry. from Northfield to Mankato and from Northfield to Randolph. Passenger service was then extended to both Mankato and Randolph. Desiring to expand freight service, and determined to stay with gasoline-electric equipment, the line purchased in 1913 from General Electric Co. a gasoline-electric freight locomotive, the first of its kind ever built, and earned for itself the notable distinction of becoming the world's first railroad operating both freight and passenger trains exclusively with gasoline-electric equipment.

Facilities were expanded to service the increased operations. At 54th St. and Nicollet Ave., Minneapolis, a passenger terminal was developed which included a: Passenger Station (completed 1912), Dispatcher's Tower (completed 1912), and Turntable (built 1912-1913). Repair shops were established at 60th St. and Nicollet Ave.: an Engine House and Repair Shop (frame with corrugated iron, irregular size) added to the Car Storage Building during 1912 and 1913; a Paint Shop (32' x 230' frame with corrugated iron) completed in 1912; and a Storage Shed (12' x 15') completed in 1913. A spur track ending at a turntable was constructed off the Auto Club Junction wye.

Two-stall carhouses (32' x 80') were constructed at Faribault and Mankato in 1913. Wyes and spur tracks were built at both Faribault and Mankato. (The carhouse at Faribault was moved to Northfield during 1915-1916 and a 10' x 33' extension built doubling the facilities there.)

The company encountered financial difficulties during 1914 due to the costs of constructing the extension. It was found necessary to engage the J.G. White Engineering Co. and a brokerage firm to assist the company in selling bonds in order to complete the line and purchase additional equipment in 1915.

BETWEEN MINNEAPOLIS AND MANKATO

Time Table—SOUTH BOUND

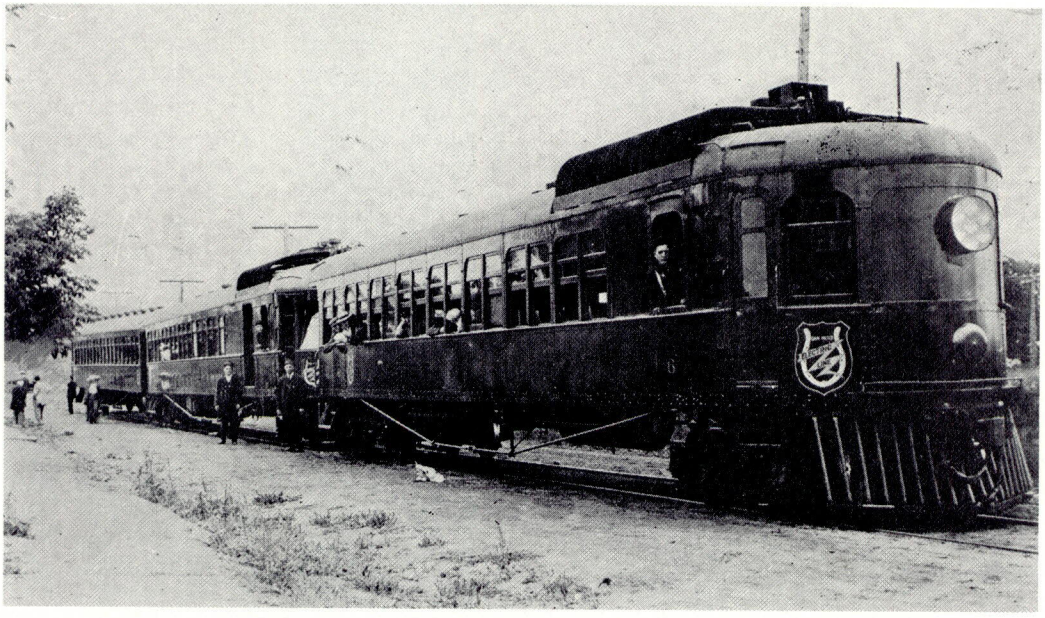
Effective July 19, 1914 — STATIONS	Distance from Mpls.	1 Pass. Local Daily	3 Pass. Local Daily	5 Pass. Local Daily	7 Pass. Local Daily	9 Pass. Local Daily	11 Pass. Local Daily	13 Pass. Local Daily	51 Freight Daily Except Sunday	301 Freight Daily Except Sunday
		AM	AM	AM	PM	PM	PM	PM	AM	AM
Lv **54th St., Mpls**	0.0	5.00	8.25	11.05	1.25	.....	5.45	7.20	1.00	.....
58th St., Mpls	0.5	f 5.01	f 8.26	f 11.06	f 1.26	.....	f 5.46	f 7.21	f 1.01	.....
Bachman	1.1	f 5.04	f 8.30	f 11.10	f 1.30	.....	f 5.49	f 7.25	f 1.06	.....
Goodspeed	1.7	f 5.05	f 8.31	f 11.11	f 1.31	.....	f 5.50	f 7.26	f 1.07	.....
Irwin	2.4	f 5.06	f 8.32	f 11.12	f 1.32	.....	f 5.51	f 7.27	f 1.08	.....
Wilson	3.2	f 5.07	f 8.35	f 11.15	f 1.35	.....	f 5.53	f 7.30	f 1.11	.....
Lynn Road	4.6	f 5.09	f 8.37	f 11.17	f 1.37	.....	f 5.55	f 7.32	f 1.13	.....
Oxboro Heath	5.4	f 5.10	f 8.40	f 11.20	f 1.40	.....	f 5.58	f 7.35	f 1.25	.....
Edgewood	6.0	f 5.11	f 8.41	f 11.21	f 1.41	.....	f 5.59	f 7.36	f 1.26	.....
Bloomington	6.7	f 5.13	f 8.43	f 11.24	f 1.44	.....	f 6.00	f 7.39	f 1.35	.....
Palmer	7.9	f 5.14	f 8.45	f 11.26	f 1.46	.....	f 6.03	f 7.41	f 1.38	.....
Bluff Park	8.9	f 5.18	f 8.47	f 11.28	f 1.48	.....	f 6.05	f 7.43	f 1.45	.....
Auto Club	10.2	f 5.22	f 8.51	f 11.32	f 1.51	.....	f 6.09	f 7.46	f 1.50	.....
Valley View	11.1	f 5.24	f 8.53	f 11.34	f 1.53	.....	f 6.11	f 7.48	f 1.52	.....
Savage	11.9	s 5.27	s 8.57	s 11.39	s 1.56	.....	s 6.15	s 7.51	s 2.25	.....
Foley	14.8	f 5.35	f 9.07	f 11.49	f 2.05	.....	f 6.25	f 8.02	f 2.40	.....
Orchard Gardens	16.2	f 5.39	f 9.11	f 11.53	f 2.09	.....	f 6.29	f 8.06	f 2.44	.....
Horseshoe Gardens	17.8	f 5.40	f 9.12	f 11.54	f 2.10	.....	f 6.30	f 8.07	f 2.45	.....
Orchard Lake	18.6	f 5.41	f 9.17	f 11.59	f 2.12	.....	f 6.33	f 8.12	f 2.55	.....
Oak Dale	21.0	f 5.42	f 9.18	f 12.00	f 2.13	.....	f 6.34	f 8.13	f 2.56	.....
Oak Glen	21.3	f 5.43	f 9.19	f 12.01	f 2.14	.....	f 6.35	f 8.14	f 2.57	.....
Summit	21.8	f 5.45	f 9.21	f 12.03	f 2.16	.....	f 6.37	f 8.16	f 2.59	.....
Antler's Park	22.7	f 5.49	f 9.28	f 12.10	f 2.20	.....	f 6.41	f 8.24	f 3.06	.....
Lakeville	23.8	s 5.55	s 9.34	s 12.14	s 2.22	.....	s 6.46	s 8.30	s 3.35	.....
Vrooman	24.5	.....	f 9.39	f 12.19	f 2.27	.....	f 6.51	f 8.31	f 3.40	.....
Livingston	26.9	.....	f 9.43	f 12.23	f 2.28	.....	f 6.54	f 8.33	f 3.46	.....
Pool's Crossing	27.7	.....	f 9.45	f 12.25	f 2.30	.....	f 6.56	f 8.35	f 3.48	.....
Eureka Center	28.3	.....	f 9.46	f 12.26	f 2.31	.....	f 6.57	f 8.36	f 3.49	.....
Forstrom	28.8	.....	f 9.47	f 12.27	f 2.32	.....	f 6.58	f 8.37	f 3.52	.....
Christiana	30.0	.....	f 9.49	f 12.29	f 2.33	.....	f 6.59	f 8.39	f 3.56	.....
Greenvale	31.5	.....	f 9.52	f 12.32	f 2.35	.....	f 7.01	f 8.42	f 3.58	.....
Manhart	32.5	.....	f 9.55	f 12.35	f 2.36	.....	f 7.02	f 8.44	f 4.01	.....
Balaclague	33.2	.....	f 9.57	f 12.37	f 2.38	.....	f 7.04	f 8.46	f 4.04	.....
Shumway	33.6	.....	f 9.58	f 12.38	f 2.39	.....	f 7.05	f 8.47	f 4.09	.....
Simpson Orchards	35.7	.....	f 10.05	f 12.45	f 2.46	.....	f 7.12	f 8.54	f 4.15	.....
Northfield	38.2	.....	s 10.15	s 12.55	s 2.55	s 2.55	s 7.30	s 9.03	4.25	5.35
Dundas	41.0	.....	s 10.24	s 1.04	.....	s 3.05	s 7.44	s 9.13	.....	s 5.50
Little Prairie	44.5	.....	f 10.32	f 1.12	.....	f 3.13	f 7.51	f 9.20	.....	.....
Bridgewater	45.3	.....	f 10.35	f 1.16	.....	f 3.16	f 7.54	f 9.35	.....	f 6.19
Scott's Mill	47.8	.....	f 10.39	f 1.20	.....	f 3.20	f 7.56	f 9.39	.....	.....
Tower City	50.6	.....	f 10.41	f 1.22	.....	f 3.22	f 7.57	f 9.41	.....	.....
Faribault	52.4	.....	s 10.55	s 1.38	.....	3.40	s 7.58	9.45	.....	7.47
Sheffield Mill	55.7	.....	f 11.07	f 1.52	.....	.....	f 8.09	.....	.....	f 8.30
Cannon Lake	58.7	.....	f 11.13	f 1.58	.....	.....	f 8.15	.....	.....	.....
Warsaw	61.7	.....	f 11.19	f 2.05	.....	.....	f 8.21	.....	.....	f 8.50
Morristown	64.7	.....	s 11.25	s 2.12	.....	.....	s 8.26	.....	.....	s 9.25
Waterville	70.7	.....	s 11.38	s 2.25	.....	.....	s 8.39	.....	.....	s 9.56
Elysian	76.6	.....	s 11.48	s 2.36	.....	.....	s 8.48	.....	.....	s 10.35
Greenland	79.1	.....	f 11.54	f 2.42	.....	.....	f 8.52	.....	.....	f 10.45
Madison Lake	83.7	.....	s 12.05	s 2.53	.....	.....	s 9.01	.....	.....	s 11.15
Hills Crossing	86.2	.....	f 12.11	f 2.57	.....	.....	f 9.05	.....	.....	.....
Watters	90.3	.....	f 12.18	f 3.09	.....	.....	f 9.12	.....	.....	f 11.50
Benning	95.6	.....	f 12.35	f 3.25	.....	.....	f 9.25	.....	.....	f 12.10
Ar Mankato	99.3	.....	12.45	3.35	.....	.....	9.35	.....	.....	12.25

BETWEEN RANDOLPH AND NORTHFIELD

TIME TABLE—SOUTH BOUND.

	Distance from Randolph	201 Pass. Local Daily	203 Pass. Local Daily				205 Pass. Local Daily			301 Freight Daily Ex. Sun.
		AM	AM				PM			AM
Lv Randolph	0.0	8.00	9.55	.....	.....	.....	6.35	.....	.....	4.30
Wallace	2.8	f 8.08	f 10.03	.....	.....	.....	f 6.43	.....	.....	f 4.40
Waterford	6.8	f 8.16	f 10.11	.....	.....	.....	f 6.51	.....	.....	f 4.55
Ar Northfield	8.9	8.20	10.15	.....	.....	.....	6.55	.....	.....	5.10

Reference Marks: (f) Flag Stop. (s) Regular Stop.



Loading passengers on Nicollet Ave. at 54th St. The leading car is #6. Street loading was common when large crowds were handled. (Joe Hutchinson collection)

The line from Auto Club Junction to Luce Line Junction (14.23 miles) was completed at a cost of $664,973.00 and opened for service on May 29, 1915. Trackage rights over the Electric Short Line Terminal Company's 3.333 miles of line were effective as of the same date. (The depot building in downtown Minneapolis was completed in 1916, owned 50%/50% by the Dan Patch Electric Lines and Electric Short Line Terminal Co.) The company sacrificed its claim to being "The First Gas-Electric Railroad in the World" by acquiring three steam locomotives to haul the heavier freight traffic envisioned; the newly opened line provided several addtional railroad connections so that the total list of such connections comprised:

Northfield: Chicago Great Western Ry., Milwaukee Road and Chicago Rock Island & Pacific Ry.

Randolph: Chicago Great Western Ry.

Savage: Chicago St. Paul Minneapolis & Omaha Ry.

Minneapolis: Great Northern Ry., and Minneapolis & St. Louis Ry.

Envisioning substantial commuter traffic, Colonel Savage purchased several thousand acres of land at Orchard Gardens and began subdividing it into 5 and 10 acre lots. How successful this venture was has not been recorded. Based upon present day growth in the metropolitan area, it apparently was far ahead of its time.

Typical operations of the company in 1915 consisted of freight trains hauled by steam locomotives and passenger trains handled by the gas-electric passenger motor cars or gas-electric locomotives. One 72 ft. gas-electric passenger motor car (seating 87) was the normal passenger train; when traffic got heavy a passenger trailer was added. For excursions and extra heavy passenger traffic, a train of passenger trailers pulled by a 60 ton gas-electric locomotive was utilized. The passenger motor cars were single end while the locomotives were double end operated.

Four through trains, Minneapolis-7th St. N. to Mankato, were operated each way daily, one of which was a limited parlor car train. The local trains required 4 hours and 5 minutes to make the 107 mile run. The limited train made no stops between Minneapolis and Northfield and three stops between Northfield and Mankato; it left Mankato at 7:00 A.M. and Minneapolis at 5:00 P.M., with the running time being 3 hours and 25 minutes. Supplementary service was provided between Minneapolis and Faribault; two trains daily, each way, were operated between Northfield and Randolph. Excursion trains were operated in summer. Some traffic was also generated by people living in cottages on the various lakes during the summer months. No mention was made as to what type of service was provided over that part of the original line from 54th St., Minneapolis, to Auto Club Junction.

Substantial station buildings were located in the various cities and towns while smaller station buildings were located every few miles between towns.

Passenger and freight traffic generated, in spite of the Colonel's promotional efforts, was insufficient to cover the heavy operating expenses incurred. On January 31, 1916, the trackage rights over the Chicago Great Western Ry. between Northfield and Mankato and Randolph were discontinued.

Over 8,500 persons had purchased 3,348,300 shares of Preferred Stock of the company; 4,977,700 shares of Common Stock had been given as a bonus to purchasers of the Preferred Stock. The railroad was on the verge of financial collapse when Col. Savage was admitted to the hospital for minor surgery. On the night of July 11, 1916, while the Colonel was in the hospital, his beloved horse, Dan Patch, became very ill and died, succumbing to the effects of his strenuous years of racing and an accidental overfeeding. The Colonel's wife and two sons informed him at his bedside of the twenty-year-old stallion's death. The news was a shock but he seemed to accept it; while not believed seriously ill, he died suddenly only 32 hours after the death of Dan Patch. On July 16, 1916, the Dan Patch Electric Lines was forced into receivership. It was reported that the road's average operating ratio over the 6 years of operation was 147%.

Charles P. Bratnober, Minneapolis (President of the Minneapolis, Anoka & Cuyuna Range Ry.), was appointed receiver on July 20, 1916. During 1916 and 1917 passenger service was drastically curtailed and most of the passenger equipment sold. A substantial amount of freight equipment, including most of the locomotives, was also sold.

Antler's Park was sold by the receiver for approximately $16,000. On December 28, 1917, the 14 mile line from Auto Club Junction to Luce Line Junction was purchased under foreclosure by C.T. Jaffray and associates representing the bondholders' committee and operations over the Electric Short Line Terminal Co. trackage were discontinued. As of July, 1918 52 miles of track were operated and equipment consisted of three gas-electric passenger cars, four passenger trailers, one steam locomotive and 60 freight cars.

The Minneapolis, Northfield & Southern Ry. was incorporated in South Dakota during June, 1918, and purchased the Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Co. at the foreclosure auction held August 6, 1918. The new owners felt their small railroad occupied a strategic location in the movement of carload freight around the Minneapolis-St. Paul area and began a slow uphill struggle to create the traffic envisioned. They regained ownership of the line from Auto Club Junction to Luce Line Junction (later re-named Glenwood Junction). The Chicago Great Western Ry. trackage from Northfield to Mankato and Randolph was leased for a ten year period in 1921 and passenger service resumed to Mankato from downtown Minneapolis over the Electric Short Line Terminal Co. trackage. By 1923 the equipment included five gas-electric passenger motor cars, two passenger trailers, four steam locomotives and 43 freight cars. Officers of the new company were: Harry E. Pence (President), A.D. Walker (Vice President), J.H. Ellison (Vice President), W.O. Winston (Treasurer), W.R. Stephens (Secretary), M.J. Dooley (General Manager), and G.C. Wright (Traffic Manager). Business improved to the extent that three additional steam locomotives were acquired second-hand from the Northern Pacific Ry. in 1925.

A major step forward occurred in 1927 when a 5.93 mile track extension from a point named Soonor (near Glenwood Junction) northward to a connection with the Soo Line Ry. at Crystal was completed at a cost of $469,358.93. Trackage rights were then obtained over the Soo Line Ry. into their Shoreham yards and interchange was established with the Northern Pacific Ry. at Northtown. Thus a belt line circling Minneapolis on three sides had been created, intersecting all the trunk line railroads radiating west and south from the Twin Cities. Also in 1927 an agreement was entered into with the Minnesota Western R.R. (successor to the Electric Short Line Ry.) whereby the officers of the M. N. & S. Ry. would manage and operate the M. W. R.R. During 1927-1928 six additional steam locomotives were acquired second-hand from the Duluth, Missabe & Northern Ry. The M. N. & S. Ry. intensively promoted industrial development along its line resulting in the origination and termination of substantial carload freight. However, by virtue of its location, over 70% of the freight traffic became what is known as "overhead" or "bridge" traffic; instead of routing freight through the Twin Cities which required time-consuming processing through terminal switching yards, the M. N. & S. could move cars *around* the Twin Cities saving a day or more in time. Thus the company developed into a financially-successful, freight-handling, short-line railroad, which continues its extensive freight operations to this day, using diesel-electric locomotives.

The gasoline-electric passenger motor cars provided all the passenger service offered through the years by the M. N. & S. Ry. Passenger trackage rights over the Chicago Great Western Ry. between Northfield and Mankato and Randolph were discontinued in 1931 (freight trackage rights were retained between Northfield and Randolph in order to connect with the C.G.W. main line to Iowa which passed through Randolph). Passenger service from Minneapolis to Northfield was discontinued April 30, 1942.

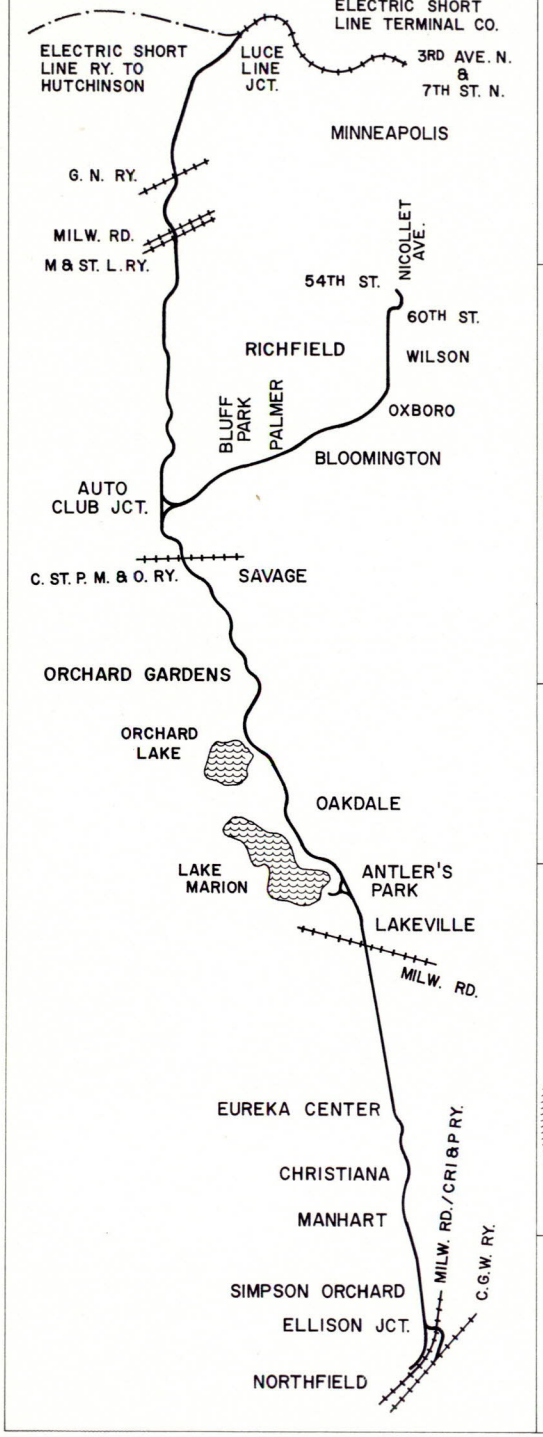
Track Mileage Records

54th St., Minneapolis, to Northfield, as of June 30th:

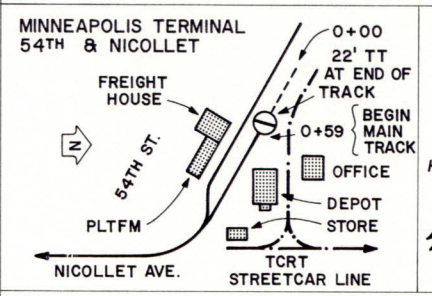
	First Track	Sidings	Total Track
1912	37.40 miles	1.41 miles	38.81 miles
1913	37.76 miles	3.08 miles	40.84 miles
1914	38.20 miles	3.08 miles	41.28 miles

MINNEAPOLIS ST. PAUL ROCHESTER & DUBUQUE ELECTRIC TRACTION CO. TRACKAGE ARRANGEMENTS 6-30-1920

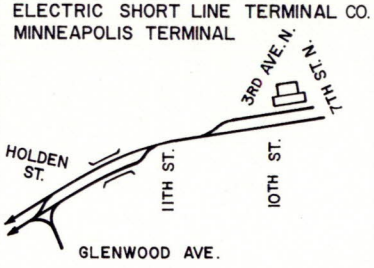
GENERAL LOCATION MAP



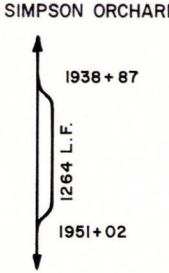
MINNEAPOLIS TERMINAL 54TH & NICOLLET



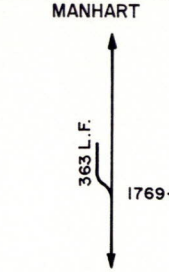
ELECTRIC SHORT LINE TERMINAL CO. MINNEAPOLIS TERMINAL



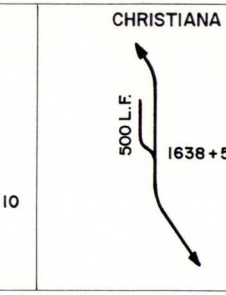
SIMPSON ORCHARD

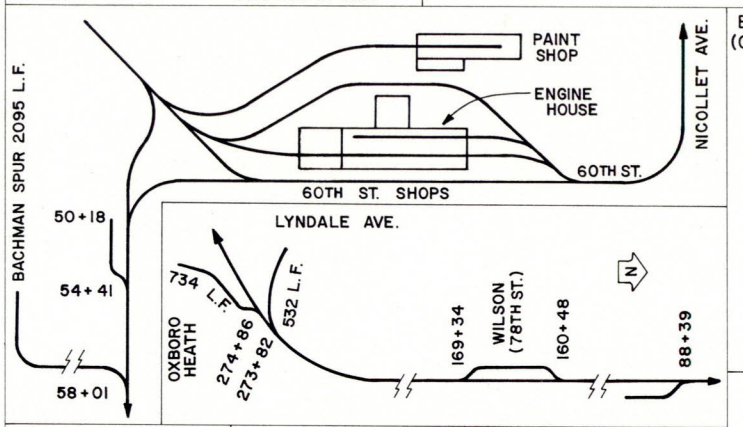


MANHART

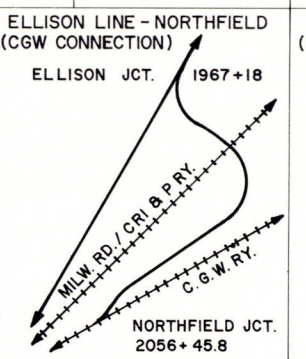


CHRISTIANA

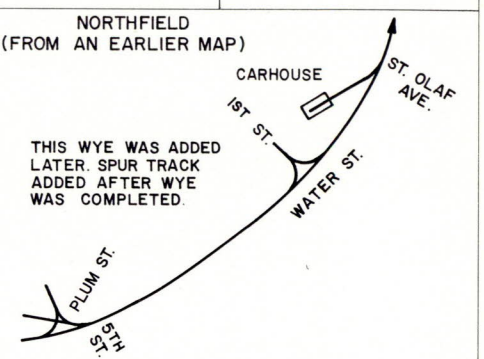


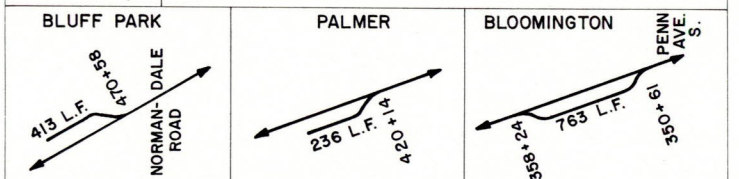


ELLISON LINE - NORTHFIELD (CGW CONNECTION)

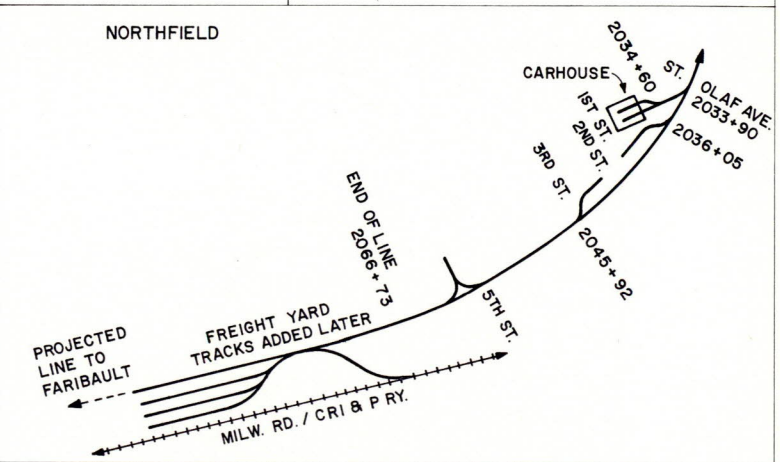


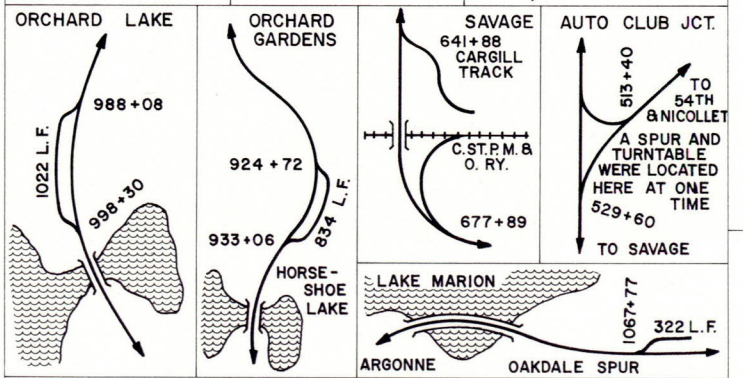
NORTHFIELD (FROM AN EARLIER MAP)



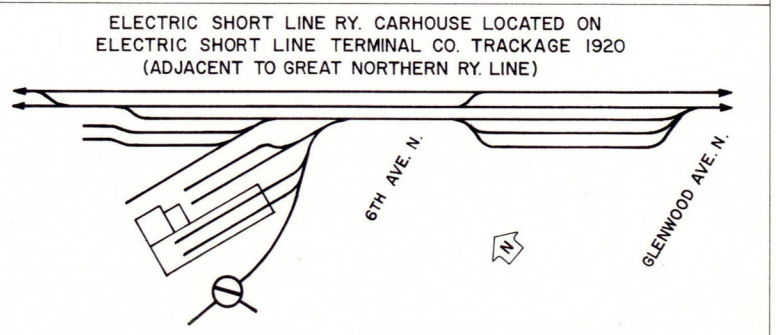


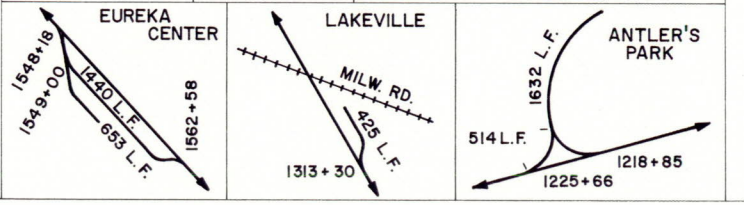
NORTHFIELD





ELECTRIC SHORT LINE RY. CARHOUSE LOCATED ON ELECTRIC SHORT LINE TERMINAL CO. TRACKAGE 1920 (ADJACENT TO GREAT NORTHERN RY. LINE)





Upon completion of line to connect with Electric Short Line Ry.:

	First Track	Sidings	Total Track
54th St. to Northfield	37.703 miles	6.152 miles	43.855 miles
Auto Club Jct. to Luce Line Jct.	14.274 miles	1.141 miles	15.415 miles
Total	51.977 miles	7.293 miles	59.270 miles

June 30, 1915:	First Track	Second Track	Sidings	Car-House Tracks	Total Track
Luce Line Jct. to Northfield	42.51 miles	—	5.17 miles	.007 miles	47.687 miles
54th St.-Mpls. to Auto Club Jct.	10.00 miles	—	2.14 miles	.190 mile	12.330 miles
Trackage Rights-ESL Term. Co. - Luce Line Jct. to Mpls. - 7th St. N.	3.24 miles	3.23 miles		.620 mile	7.090 miles

Roster of Equipment
Strang Gas-Electric Car Co. Passenger Motor Cars

During 1905 and 1906, the Missouri & Kansas Interurban Ry. ("The Strang Line",) was building a railroad between Kansas City, Mo., and Olathe, Kan. The M & K's owner, William B. Strang, Jr., had designed a gas-electric motor car for use on this line. Mr. Strang patented his designs and formed The Strang Gas-Electric Car Co., of which he was President and Lars G. Nilson, Chief Engineer. The carbodies were designed by Strang and Nilson, the engine and accessories designed by Nilson, and the engines and generators built at the Strang shops under the personal supervision of Strang and Nilson. The J.G. Brill Company of Philadelphia built the carbodies, furnished the trucks and traction motors, and assembled the entire car.

The M & K probably received four such cars.

1 "Ogerita" (named after Mr. Strang's wife) was received in April, 1906, The car was 36'6½" long over the body, 41'6½" long over the crown pieces, and 8'4" wide. The interior was finished in mahogany, richly carved and inlaid; the semi-empire style ceiling was tinted light green and decorated with gold; a rug covered the hardwood floor while silk curtains, draperies and upholstery were all colored dark green. The gasoline engine was a V-6, four cycle, 8" x 10" unit directly connected to one 50 KW 250-volt D.C. generator. One 112-cell storage battery of 200 ampere-hour capacity was carried in a cradle underneath the center of the car which was used with a starting rheostat to temporarily convert the generator into a starting motor for the engine. Brill 27-E½ trucks, two 50 h.p. traction motors, and two K-13 controllers were utilized. A centrifugal pump belted to the engine flywheel pumped water from a tank in the vestibule at the center of the car and forced it through the cylinder jackets to radiating pipes on the roof; in cold weather the passenger compartment was heated by water from the cylinder jackets. Gasoline was stored in a 100-gallon tank under the car floor; the 0.45 gallon per car-mile consumption resulted in a 225 mile operating range. Maximum speed was 50 miles per hour. The car was also capable of pulling two passenger trailers.

2 "Geraldine" and 3 "Marguerite" were identical in construction. 2 was under construction in February, 1906, and 3 was nearing completion in early August, 1906. Both were 48'0" long over end panels and 52'9" long over the crown pieces; width was 9'6". The passenger compartment measured 27'5" long, the smoking compartment 10'8" long, and the engine room 14'8" long. The interior woodwork was colored a green tint and the seats were covered with red leather. Brill 27-E½ trucks were utilized and the engine was reportedly a vertical, four-cylinder, 10" x 10" design.

The M & K Interurban Ry. had problems with the cars. They often stalled on stiff grades, long delays were encountered in obtaining spare parts, and competent personnel to operate and service them were difficult to find. The M & K decided in March, 1908, to electrify the line and sell the cars. (Their first electric car operated in January, 1909.) It was reported that during the middle of 1908 the "Ogerita" was sold to the Dan Patch Electric Lines.

The Brill Magazine, issue of April 15, 1908, reported that the "Irene" had been "lately completed and was the third (sic) and largest car that Brill had furnished to the M & K Interurban Ry." The article also stated that another car of identical design to the "Irene" was nearing comple-

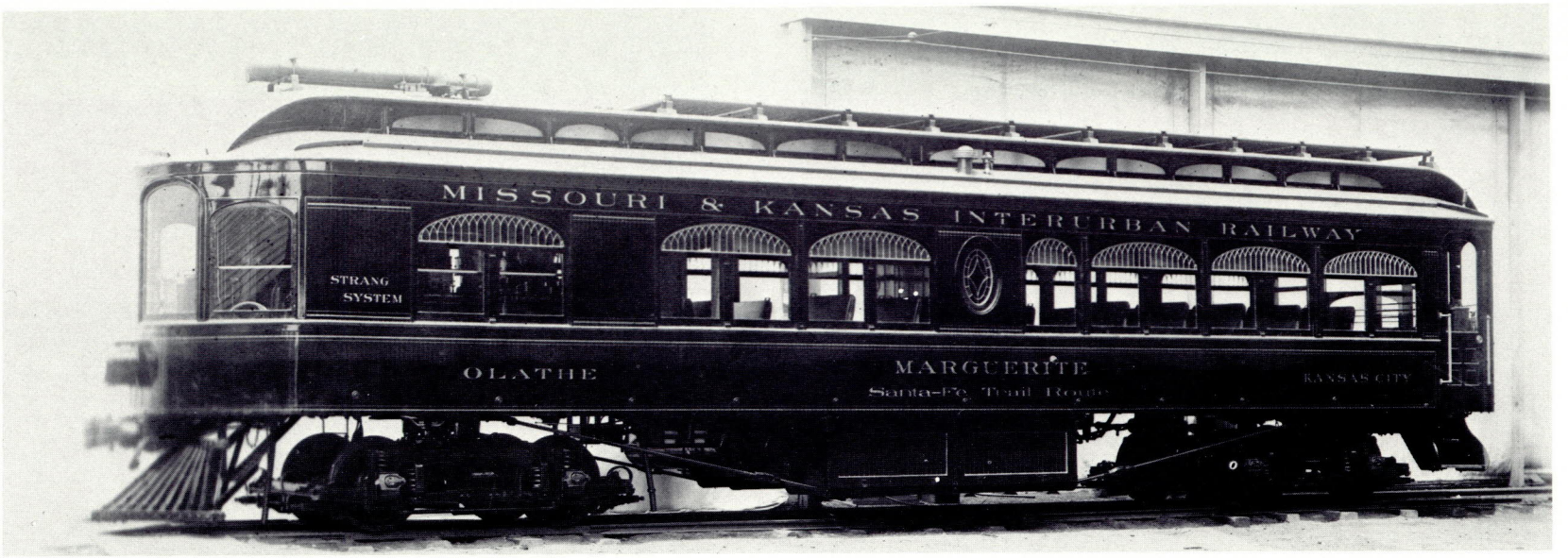
J. G. Brill Co. builder's photographs of the "Ogerita" as completed for the Missouri & Kansas Interurban Ry. The interior view is looking toward the front and the center entrance. The M & K subsequently removed the center entrance and replaced the chairs with leather transverse seats to increase the seating capacity. (Historical Society of Pennsylvania)

tion. Referring to the Brill Company photographs, it will be noted that under order #15652, the "Irene" is lettered for the Strang Gas-Electric Car Co., and under order #17261 is pictured as number 2 of the M. St. P. R. & D. E. T. Co. The identical car referred to in the article is probably the "Rosamond", photographed under order #17301 for the M. St. P. R & D. E. T. Co. Data on the "Irene" reported in the Street Railway Journal are as follows.

The car was 62'8" long and 9'6" wide. Interior was of vermillion wood, richly carved and inlaid, with a sheet-metal ceiling. The engine was a vertical, six cylinder, 150 h.p. unit directly connected to an 85 KW 250-volt D.C. generator. A starting rheostat and 112-cell storage battery of 300 ampere-hour capacity temporarily converted the generator into a starting motor for the engine. Brill 27E trucks were utilized with two 100 h.p. traction motors mounted on the front truck. General Electric Co. Type M multiple unit control and automatic air brakes were installed. The roof was open on top in order to expose the radiator system for cooling the jacket water of the engine. An electrically driven centrifugal pump circulated the water through the radiators, or when desired, through the heating pipes in the passenger compartment. The car weighed 114,000 pounds, was capable of pulling three 75-passenger trailers, had a top speed of 60 miles per hour, and a 200 mile operating radius based on the capacity of the storage tanks and its gasoline consumption rate of 0.6 gallons per mile. Seating capacity was given as 38 persons.

According to fragmentary penciled notes found on some old Dan Patch Electric Lines forms, 1 "Ogerita", 2 "Irene", and "Rosamond" were Strang cars received in 1909 or 1910; dates of 1910 for "Irene" and December, 1910, for "Rosamond" are also listed.

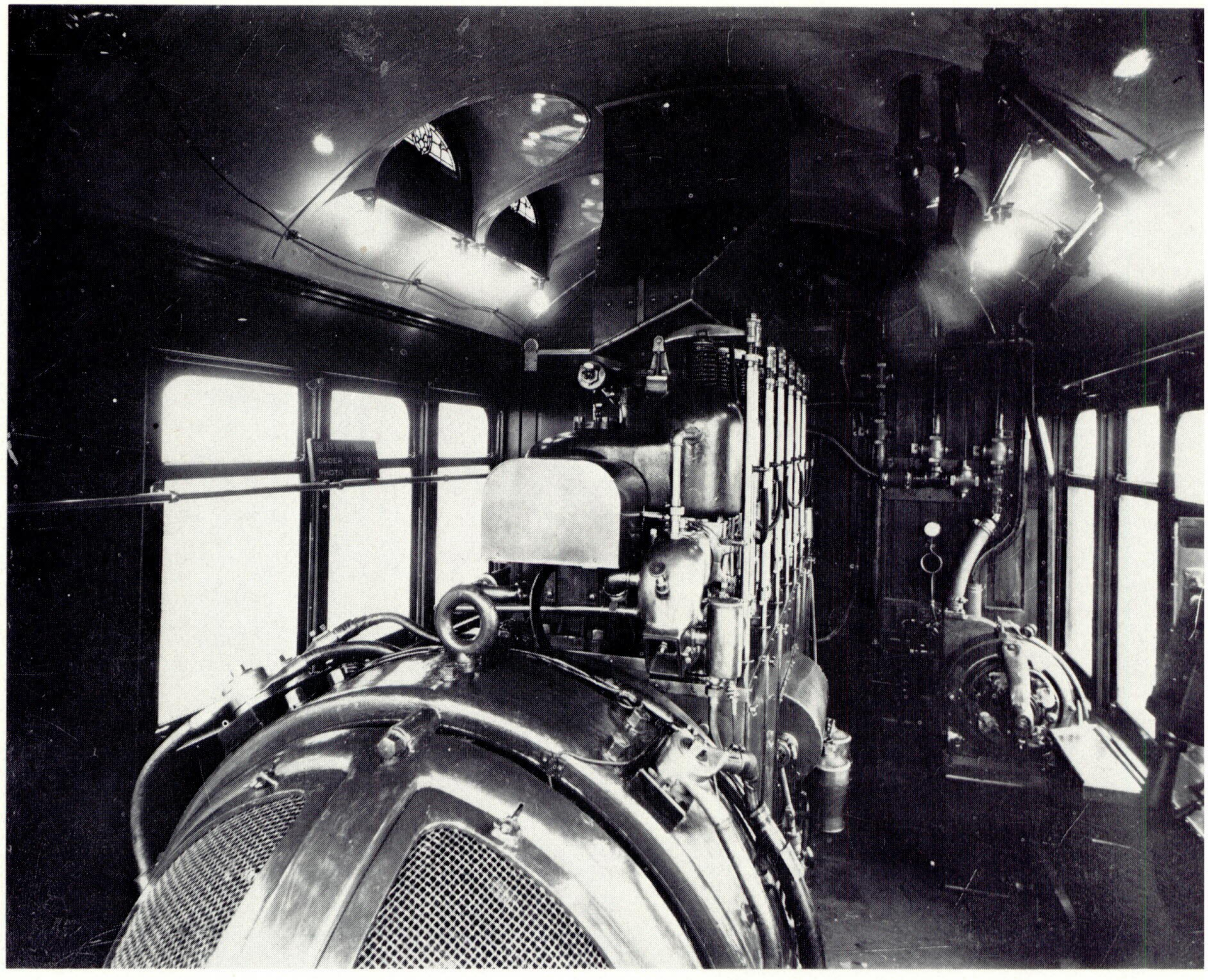
1 "Ogerita" was used to open the line in July, 1910. As business improved the very limited seating capacity of this car was a severe handicap. When Antler's Park needed additional electrical capacity, 1 was spotted on a siding at the park and used as an electric power plant. According to the penciled notes, 1 was either retired or sold to the Luce Electric Lines in 1914.



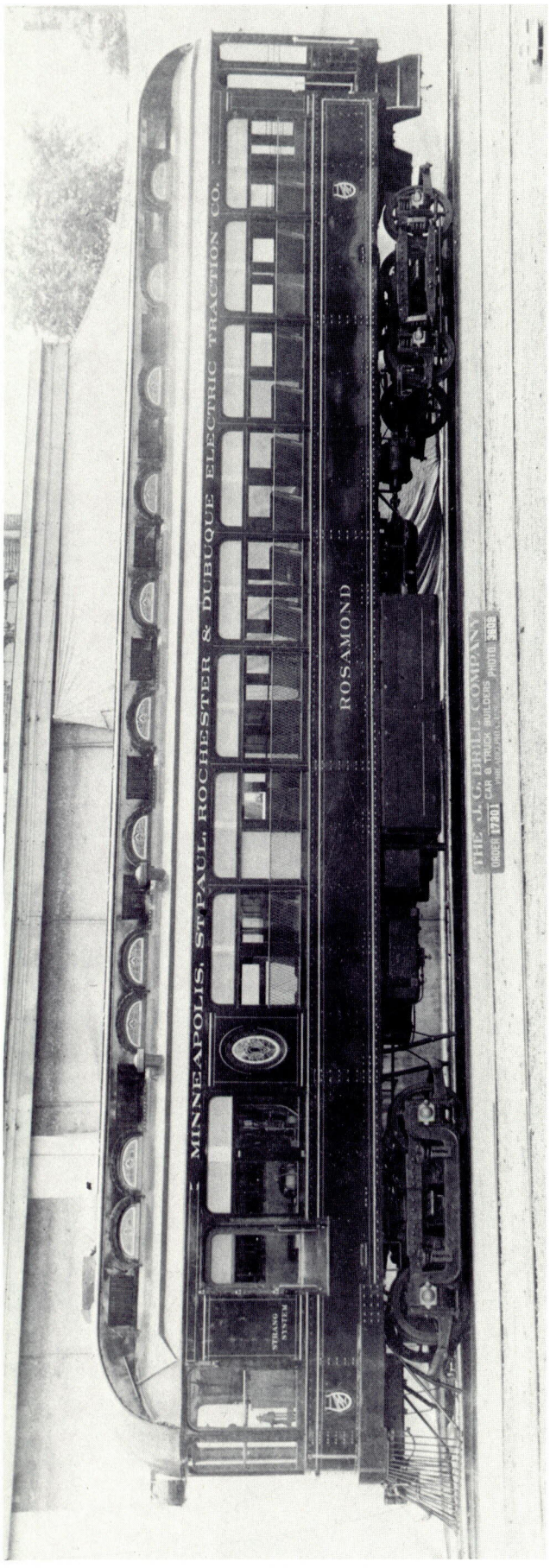
Above: J. G. Brill Co. photograph of "Marguerite" built for the Missouri & Kansas Interurban Ry. Both "Marguerite" and "Geraldine" were reportedly converted to straight electric operation by the M & K, and were the only Strang System cars to remain on that property.

Below: J. G. Brill Co. photograph of the "Irene" as re-lettered and numbered for the Dan Patch Electric Lines.

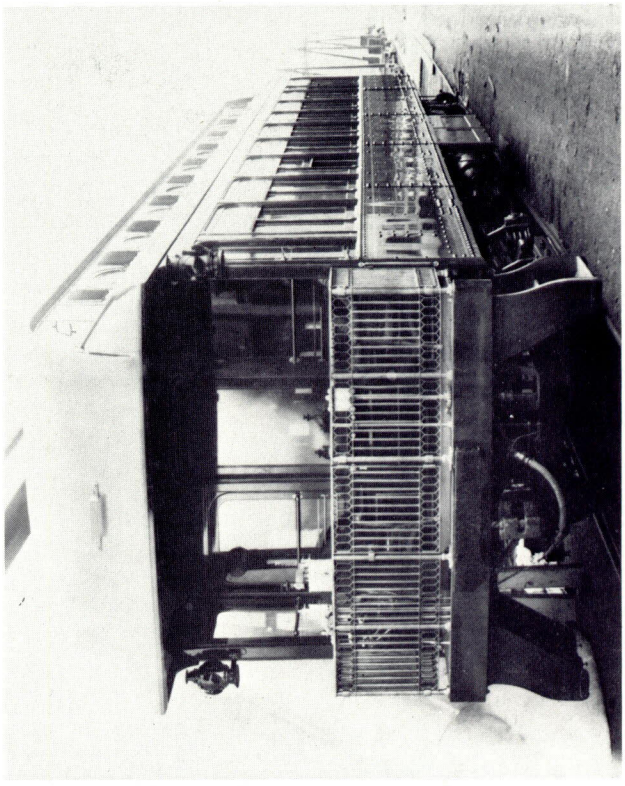
(Both photographs Historical Society of Pennsylvania)



J. G. Brill Co. photographs of the interior of the "Irene". The engine room view is taken from the front of the car looking toward the rear. The passenger compartment view is from the rear looking toward the front; note the lavish and ornate decoration, woodwork, and stained glass windows. (Historical Society of Pennsylvania)

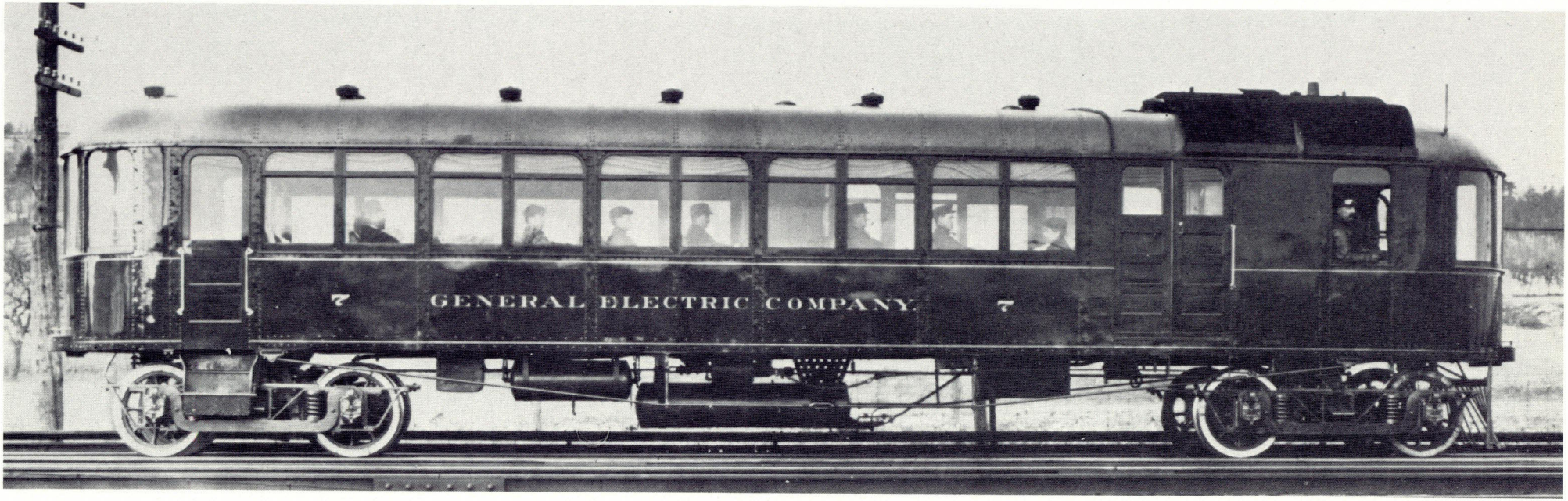


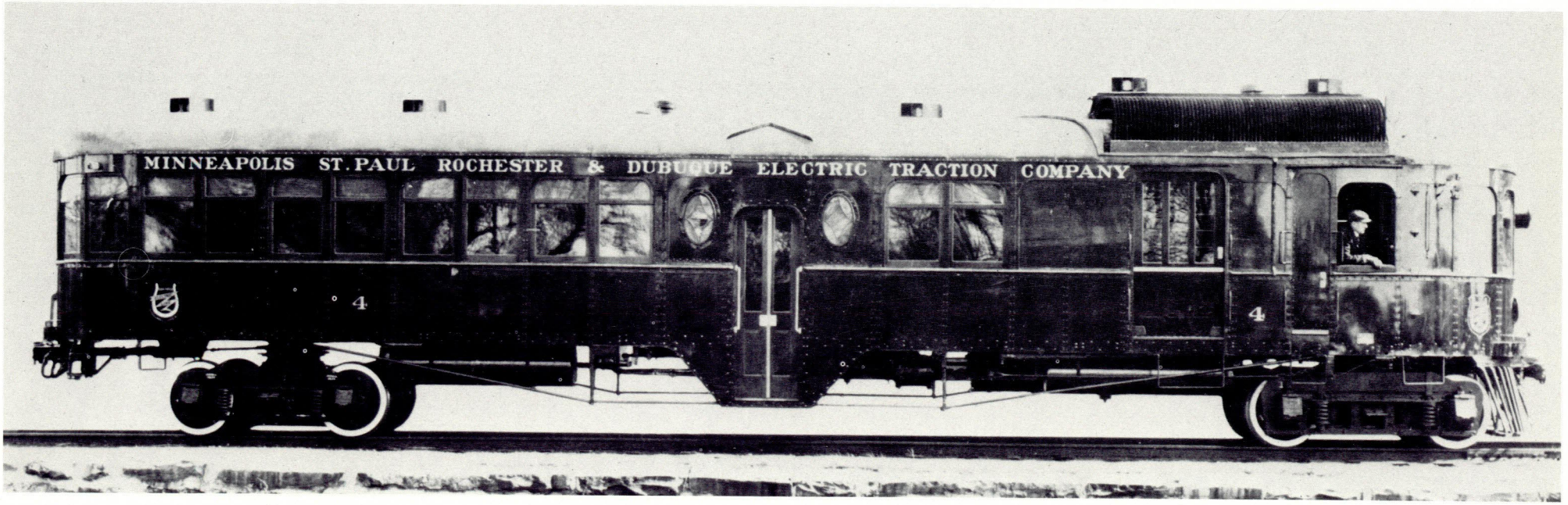
J. G. Brill Co. photographs of the "Rosamond", above, and rear observation platform of the "Irene", below. One theory is that "Rosamond" was the first car 3, destroyed in the 1914 paint shop fire. It was replaced by second car 3, G.E. demonstrator 2 with serial number 3720. Car 8 was actually serial number 3706. (Historical Society of Pennsylvania)



2 "Irene" was also reportedly present for the opening of the line in July, 1910. It was frequently used as a private car by Col. Savage transporting visitors to and from his stock farm. In May, 1913, the car was re-equipped with a General Electric Co. GM-16C1 engine and generator, and Wason Mfg. Co. trucks with two G.E. 205D traction motors; assigned G.E. serial number 3764 in the process, it then seated 48 persons and weighed 101,500 pounds. The car traveled to and from GE's Erie plant under its own power for the re-equipping. Re-named "Marion", it was used as the parlor car on the Minneapolis-Mankato Limited. In June, 1915, it was re-numbered 15 (the name being removed in 1920), which number was retained until the car was retired in 1932.

"Rosamond", for some unknown reason, did not have a number assigned. The penciled notes give no further information other than that the car was retired in 1914.


7 GENERAL ELECTRIC COMPANY 7


MINNEAPOLIS ST. PAUL ROCHESTER & DUBUQUE ELECTRIC TRACTION COMPANY
4
4

General Electric Co. – Wason Mfg. Co.
Passenger Motor Cars

TABLE 1. GENERAL ELECTRIC CO. - WASON MFG. CO. PASSENGER MOTOR CARS

No.	G.E. Serial No.	Date	Type	Engine	Motors	Seats	Weight Tons	Note
3	3706	12-1910	RE50B5	GM-10A1	2 G.E. 72A	44	32	1
4	3709	5-1911	CE58B8	GM-16A1	2 G.E. 205B	47	41	2
5	3710	5-1911	CE58B8	GM-16A1	2 G.E. 205B	47	41	
6	3704	2-1911	RE57	GM-10B2	2 G.E. 205	88	39	3
7	3708	7-1911	RE57B6	GM-16A1	2 G.E. 205B	75	40	
8	3720	3-1912	RE67B11	GM-16B	2 G.E. 205D	88	45½	
9	3735	5-1912	RE70B11	GM-16A5	2 G.E. 205D	91	49	
10	3736	5-1912	RE70B11	GM-16A5	2 G.E. 205D	91	49	
11	3766	8-1913	RE70B11	GM-16C1	2 G.E. 205	69	51½	
12	3767	8-1913	RE70B11	GM-16C1	2 G.E. 205	69	51½	
13	3789	7-1915	RE70B11	GM-16C5	2 G.E. 205	69	51½	4
14	3790	8-1915	RE70B11	GM-16C5	2 G.E. 205	69	51½	
12	3791	1-1916	RE70B11	GM-16C9	2 G.E. 205	—	51½	5

In 1904 the General Electric Co. undertook its first gasoline-electric passenger motor car design with the objective of avoiding the vulnerability of mechanical transmissions to damage from the shocks caused by railroad service. The first car (GE 1) was completed in February, 1906; it was eventually (June, 1914) acquired by the Electric Short Line Ry. The second and third demonstrators (GE 2 and GE 3) were eventually acquired by the Dan Patch Electric Lines and the Electric Short Line Ry. respectively. A standardized line of cars with power equipment manufactured by General Electric Co. installed in carbodies and trucks produced by the Wason Manufacturing Co. was offered beginning in 1911. Both the Dan Patch Electric Lines and Electric Short Line Ry. acquired these cars in quantity. The car type designation used in the table following is GE's system:

CE or RE = center entrance or rear entrance.
Overall length to the nearest foot.
B = baggage compartment.
Length of baggage compartment to nearest foot or half-foot.
(All cars were also divided into smoking and passenger compartments.)

NOTES

1. This was GE 2, a demonstrator originally built 12-1907. It was the first car with the body built by Wason Mfg. Co. and was equipped with American Locomotive Co. trucks (6'4" wheelbase and 36" diameter wheels). The engine was a 90 H.P. V-8, started by hitting a black powder cartridge with a hammer. It was equipped with a 90KW main generator and 3.5 KW exciter generator, 15 step controller, and one motor mounted on the inner axle of each truck. The interior contained green leather seats and Mexican mahogany trim. The car demonstrated on many railroads, including the Dan Patch Lines, and was acquired in late 1910.
2. The GM-16 engine was a 175 H.P. V-8 started by compressed air. An auxiliary GM-24 engine, 2 cylinder, 10 H.P., was utilized to drive a 1.5 KW lighting generator; a third cylinder integral with the engine was an air compressor supplying the air to start the main engine. The 100 KW main generator supplied electricty to two 100 H.P. traction motors mounted on the front truck.
3. This was GE4, a production car built for stock in 2-1911 which was also used as a demonstrator. It was acquired in 6-1911. The engine was a 125 H.P. V-8, started by compressed air, directly connected to an 80 KW main generator. An auxiliary one cylinder, 4 H.P. engine drove a small air compressor to supply air for starting the main engine. Car lighting came from a 3.5 KW exciter integrated with the main generator.
4. Car 13 was re-numbered 16 after 1920.
5. The second car with this number was acquired from the Florida East Coast Ry. (their 200) in 1921 when passenger service was restored to Mankato.
6. The Wason Mfg. Co. trucks had 33" diameter wheels. Front truck wheelbase was 6'6" on cars 4-7 and 6'10" on 8-14 and second 12. The rear truck wheelbase was 5'6" and 6'0" respectively.

Facing Page

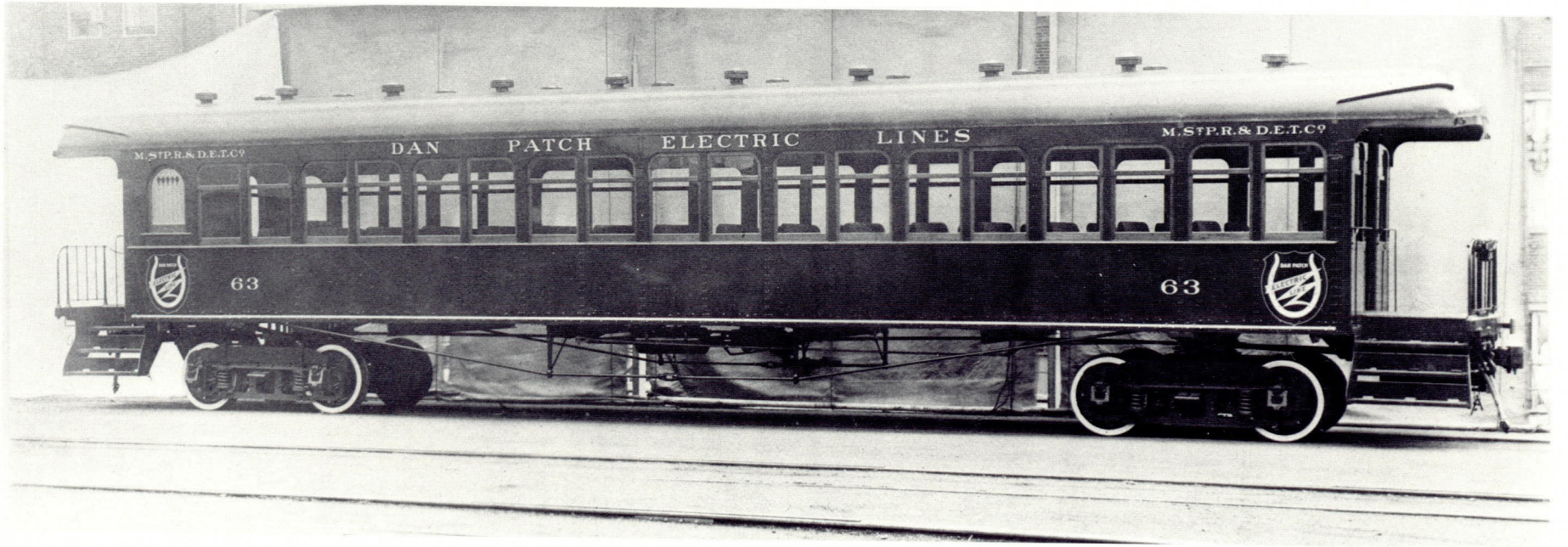
Above: General Electric Co. demonstrator 2, later re-numbered 7, which eventually became Dan Patch Electric Lines 3.

Below: General Electric Co. builder's photograph of Type CE59B8 car 4.

(Both photographs General Electric Co.; Raymond F. Corley)

Above: General Electric Co. builder's photograph of Type RE70B11 car 11. (General Electric Co.; Raymond F. Corley)

Below: J. G. Brill Co. photograph of passenger trailer 63. (Historical Society of Pennsylvania)



Disposition of the foregoing cars is as follows.

7 was damaged in a head-on collision with locomotive 100 in 1914 and rebuilt into a mail-baggage trailer with a 15' mail compartment and 25' baggage compartment. It was assigned #200.

3 was destroyed in the fire at the 60th St. shops, Minneapolis, on November 19, 1914.

Eight cars were sold, six during 1916 and two during 1917.

4 and 5 to the Okmulgee Northern Ry. (Oklahoma), becoming their 110 and 111 (5 may have been sold first to the St. Louis-San Francisco R.R.

6 to the Warren and Ouachita Valley R.R. becoming their 4.

8 to the Spokane, Portland & Seattle Ry., Portland, Oregon, (1917) becoming their 1102.

9 to the Visalia Electric R.R., Visalia, California, becoming their 450.

10 to the Ringling Brothers Circus according to Dan Patch Electric Lines records; it may have been re-sold to the Northwestern Pacific Ry., California.

11 and 12 to the San Diego & Southeastern Ry., California, becoming their 41 and 42 respectively.

Three cars were retired: 16 (ex-13) in 1939; 2nd 12 in 1942; and 14 in 194? (having been used for freight switching after the end of passenger service.)

Passenger Trailers

The Electric Railway Journal listed the Dan Patch Electric Lines as having ordered four passenger trailers, 44' long, from the J.G. Brill Co. in 1910. However an early photograph shows one of the gas-electric passenger motor cars pulling a wooden, railroad roof, open platform, center door, trailer which appears to be a second-hand elevated railway car. There were four trailers, numbered 50-53, about which nothing is known. 50 was disposed of during the period between July 1, 1912, and June 30, 1913. The others were disposed of after June 30, 1915.

A number of open platform trailers were purchased from the J.G. Brill Company (Wason Mfg. Co.) during 1912 and 1913. These cars were of steel construction, 48'6" long, weighed 22 tons, and seated 104 persons (three in a seat): 54-55 were received in June, 1912; 56-59 were received in April, 1913; and 60-62 were received in May, 1913.

Twelve larger passenger trailers were ordered from the J.G. Brill Co. during 1915. These cars were 57'4" long over bumpers, 49'0" long over the body, 10'0" wide, 50" open platforms on each end, furnished with one toilet room, and were equipped with Wason Mfg. Co. trucks identical to those used as the trailer truck on the passenger motor cars. 63-68 were received in June, 1915; and 69-74 were received in July, 1915.

The paint shop at the 60th St. shops in Minneapolis was destroyed by fire on November 19, 1914, along with the following equipment: Passenger Motor 3; Passenger Trailers 56 and 62; and one Gondola Trailer.

Of the nineteen trailers remaining (54-55, 57-61, and 63-74), seventeen were disposed of during 1917. Two trailers (55 and 59) were retained for many years thereafter for use in passenger service.

Freight Trailers

Data as of June 30, 1915:

1 Baggage-Mail Car: 200 (subsequently classified as a Milk Car.)

100 Box Cars: 100, 1001-1004 (built by American Car & Foundry Co. 1912-1913), 1501-1502 (45 ft. long, built in 1912), 2000-2007 and 2009-2093.

6 Refrigerator Cars: 3000-3005.

15 Flat Cars: 502-516 (built by General American Car. Co., 1912, and Peteler Car Co., 1912; 34 ft. long).

1 Gondola Car: 101 (built in 1911; 28 ft. long).

1 Work Car: 400.

1 Caboose: 01 (30 ft. long).

In August, 1915, a passenger trailer (number unknown) was rebuilt in the 60th St. shops, Minneapolis, to a Milk Car and assigned 210.

45 Box Cars, 2500-2544, were built by the J.G. Brill Company later in 1915. These were 36 ft. long, wooden underframe, 40 ton cars equipped with arch-bar trucks.

Gas Motor A-1

An item of passing interest was that in 1918 the Minneapolis, Northfield & Southern Ry. equipped a 1918 White 2-ton truck chassis with a 20 ft. long body seating 31 persons. The gasoline engine drove a mechanical transmission. Apparently the car was purchased to carry passengers on runs with light patronage.

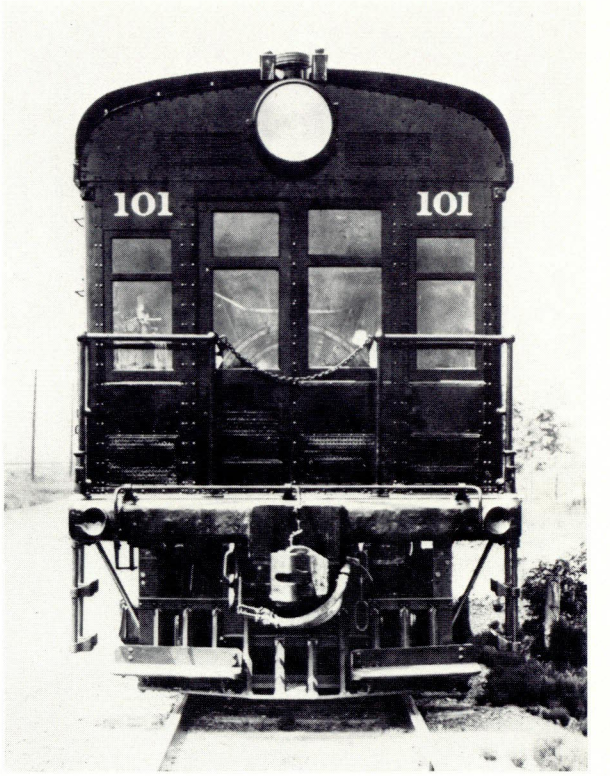
Steam Locomotives

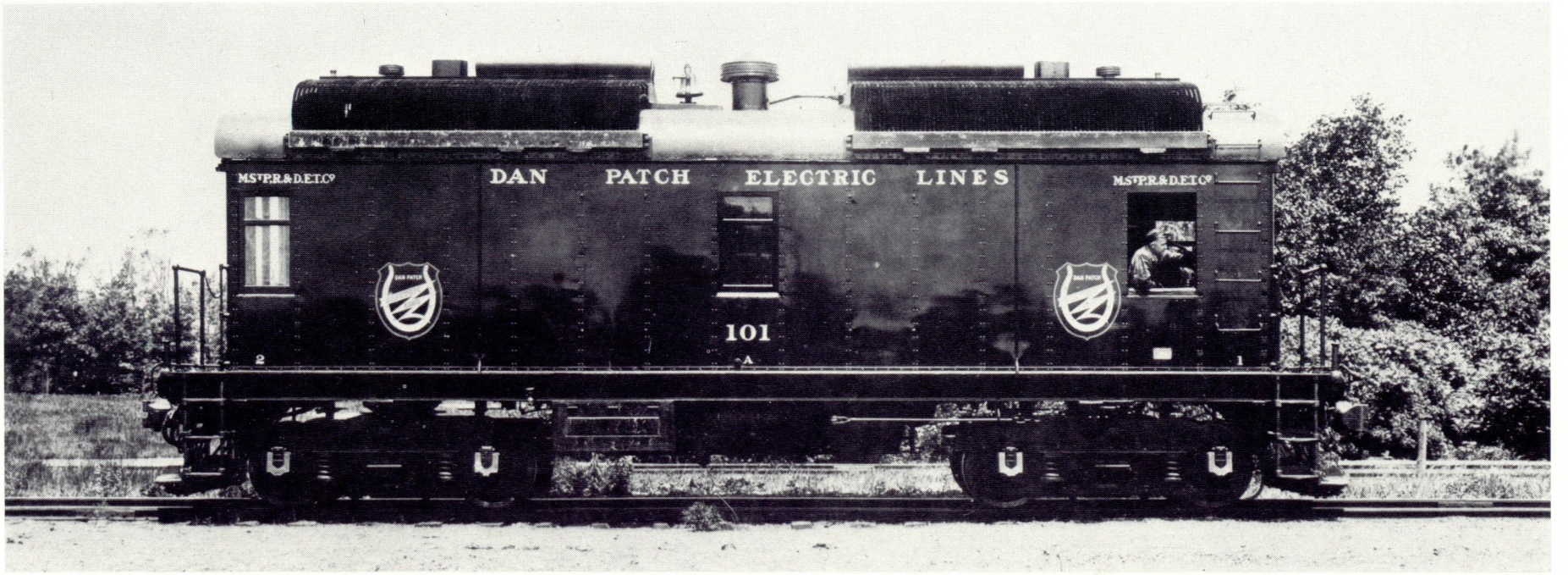
No.	Type	Builder	Date	Weight
200	2-6-0	H.K. Porter Co., Pittsburgh, Pa.	9-1914	96½ tons
201	2-6-0	H.K. Porter Co., Pittsburgh, Pa.	9-1914	96½ tons
202	2-6-0	H.K. Porter Co., Pittsburgh, Pa.	9-1914	96½ tons

Each had 51" diameter driving wheels, 18" x 24" cylinders, 175 lbs. per sq. in. steam pressure, and exerted 23,790 lbs. tractive effort.

200 was retained while the other two were sold in 1916, 201 going to the Electric Short Line Ry.

100
MSTP.R.& D.E.T.Co
DAN PATCH ELECTRIC LINES
100


101
101


MSTP.R.& D.E.T.Co
DAN PATCH ELECTRIC LINES
MSTP.R.& D.E.T.Co
101

General Electric Co. – Wason Mfg. Co. Gasoline-Electric Locomotives

No.	G.E. Serial Number	Date	Engines	Motors	Weight
100	3763	6-1913	2 GM-16C4	4 GE 205 D	57 tons

Measurements were: length overall 36'4", length of cab 27'0", width 10'5⅞", and height 14'6¾". Equipment consisted of: one GM-23 auxiliary engine driving a 5 KW generator for lighting (up to 3 or 4 passenger trailers) and powering a 25 cu. ft. air compressor for starting the main engine; each main engine had a built-in 22.5 cu. ft. air compressor for the air brake system; Wason Mfg. Co. RM 54B trucks with 6'10" wheelbase and 33" diameter wheels; two 15 point series-parallel controllers (7 series points, 6 full-field parallel points, and 2 shunted-field parallel points); mechanically vented radiators — the generator shaft extensions drove fans in externally mounted cylindrical housings. Fuel capacity was 300 gallons in under-floor storage tanks. Each V-8 main engine was connected to a 600 volt D.C. generator; the engine-generator sets operated in parallel. Either or both engines could be controlled from either end. Either main engine could be started by compressed air or electricity; only the first engine had to be air started, the second was cranked by motoring its main generator using electricity from the first generator. The two traction motors on each truck were wired in parallel and the pairs of motors then connected in series or parallel. Starting tractive effort was 30,000 pounds. Speed was rated at 38 m.p.h. but 100 achieved 51 m.p.h. running alone and 45 m.p.h. with a five-car train. This locomotive was claimed by G.E. to be the first in the world powered with an internal combustion engine that transmitted power to the wheels through electric motors. However historians have determined that a 30" gauge 22-ton diesel-electric built in late 1912 was actually the first.

In 1914 100 was damaged in a head-on collision with passenger motor car 7 which occurred between Orchard Gardens and Lakeville. Repairs were undertaken in the 60th St. shops and in the process the damaged end was modified in appearance. The cab was extended to fully enclose the former open platform which was also squared off. A finned-tube roof-top radiator replaced the mechanical radiator.

In late 1917 the locomotive was sold the the Central Warehouse Co., St. Paul, and assigned to switching service on that company's industrial trackage.

No.	G.E. Serial Number	Date	Engines	Motors	Weight
101	3786	6-1915	2 GM-16C5	4 GE 205D	125,760 lb.
102	3787	6-1915	2 GM-16C5	4 GE 205D	125,760 lb.
103	3788	7-1915	2 GM-16C5	4 GE 205D	125,760 lb.

These locomotives were of the box cab design with finned-tube, convection-cooled, roof-top radiators. Measurements were: length 40'0", width 9'6", and height 15'2". Equipment consisted of: Wason Mfg. Co. RM 54 B trucks, two G.E. P-35-A controllers, Westinghouse automatic air brakes; gear ratio was 17:58. Other technical and operating information is identical to that for 100.

All three locomotives were sold during 1917 with three differing versions as to their disposition:

1	2	3	
101	103	101	Visalia Electric R.R. 401, Visalia, Cal.
102	102	103	Visalia Electric R.R. 402.
103	101	102	Pacific Electric Ry. 2nd 1501, Los Angeles, Cal.

Facing Page

Above left: General Electric Co. builder's photograph of gasoline-electric locomotive 100. (General Electric Co.; Paul M. Joyce)

Above right: Head-on view of gasoline-electric locomotive 101. (General Electric Co.; Raymond F. Corley)

Below: General Electric Co. builder's photograph of gasoline-electric locomotive 101. (General Electric Co.; Raymond F. Corley)

ELECTRIC SHORT LINE RY.

(Luce Electric Lines)

Minneapolis to Hutchinson, Minn.

The objective of the organizers of this company was to build an electric railway from Minneapolis directly west and southwest via Montevideo, Minnesota, to Watertown, South Dakota, through prosperous farming country.

The process of construction resulted in the formation of several corporations, the reasons for which are now obscure.

The Electric Short Line Railroad was incorporated in August, 1908, by Severn Solverson (Minneapolis), E.C. Hinde (Sioux Falls, S.D.) and Frank E. Reed (Glencoe, Minn.). Construction started during 1909 on a line beginning at 7th St. N. and 3rd Ave. N. in downtown Minneapolis westward toward Hutchinson, Minn. By 1912 rail laying had been completed on the first 8 miles of line, while an additional 25 miles of line was in various stages of construction. The first 3.19 miles (or 3.24 miles) from 7th St. N. and 3rd Ave. N., Minneapolis, to Boagen Green (later re-named Luce Line Junction when track of the Dan Patch Electric Lines reached this point) was completed (exclusive of any overhead poles and trolley wire) during 1913 at a cost of $882,467.94. Additional track construction was completed by the Electric Short Line Railway, as described in the following paragraph. The name of the Electric Short Line Railroad was changed May 6, 1915, to the Electric Short Line Terminal Co.; on May 6, 1915, trackage rights were granted to the Dan Patch Electric Lines over the 3.19 miles of completed line. As of December 31, 1917, the ESL Terminal Co. had 355 stockholders of which the majority of the stock was owned by J.E. Luce (13,800 shares), Hazel Luce (3,000 shares), Gluek Brewing Co. (975 shares), Charles Gluek (480 shares) and others residing in Minneapolis, Sleepy Eye, Benson, and Hutchinson, Minnesota. Officers of the company were William L. Luce (President and Treasurer), Erle D. Luce (son of William L.) (1st Vice President) and Severn Solverson (Secretary), all of whom were also officers of the ESL Railway.

The Electric Short Line Railway had been incorporated in December, 1908, in Arizona. It was controlled through majority stock ownership by the Minnesota Construction Co., another corporation controlled by the Luce family. Officers of the ESL Railway were William L. Luce (President), Erle D. Luce (1st Vice President), Severn Solverson (Secretary), and R.C. Jones (General Manager). According to Minnesota Railroad & Warehouse Commission records the additional track construction was undertaken and/or completed by the ESL Railway as follows: Luce Line Junction to Parkers Lake (6.94 miles) started June, 1909, and completed January 19, 1914; Parkers Lake to Stubbs Bay (7.78 miles) started April, 1913, and completed June 2, 1914; Stubbs Bay to Winsted (22.44 miles) started October, 1914, and completed February 13, 1915; and Winsted to Hutchinson (17.24 miles) started August, 1915, and completed February 28, 1916. Total cost of construction from Luce Line Junction to Hutchinson was $1,639,006.39.

Statistics reported to the Minnesota Railroad & Warehouse Commission in the early years provide additional information:

June 30, 1914:

Operated under contract (Electric Short Line R.R.):	
Minneapolis to Boagen Green	3.27 miles
Owned (Electric Short Line Railway):	
Boagen Green to Stubbs Bay	14.51 miles
Total	17.78 miles

The ESL Ry. paid $2.40 to the ESL R.R. for each round trip operated over its tracks.

June 30, 1915:

ESL Ry.: Luce Line Jct. to Winsted 37.16 miles plus sidings 4.25 miles = total track 41.41 miles.

ESL Term. Co.: Minneapolis to Luce Line Junction 3.06 miles plus second track 3.00 miles = total track 6.06 miles.

Total track of both companies was 47.47 miles.

December 31, 1917:

Luce Line Jct. to Hutchinson 54.40 miles plus sidings 7.80 miles = total track 62.20 miles.

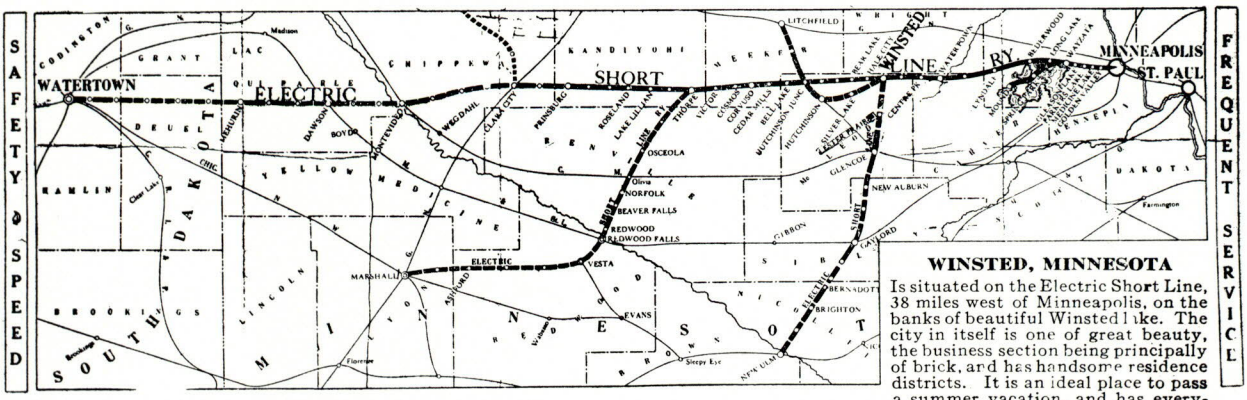
Trackage rights over ESL Term. Co. 3.06 miles plus second track 3.06 miles plus sidings 2.59 miles = total track 8.71 miles.

Total track of both companies was 70.91 miles.

The official records as of June 30, 1920, listed the mileage as: Luce Line Junction to Hutchinson 55.133 miles, sidings and yard tracks 7.931 miles, for total track of 63.064 miles.

According to the Minnesota Railroad & Warehouse Commission records, the property of the ESL Terminal Co. was either acquired directly or the contract therefor assigned to the ESL Ry. However it remained a separate corporation holding title to the roadway and track between downtown Minneapolis and Luce Line Junction (later re-named Glenwood Junction).

WINSTED, MINNESOTA.

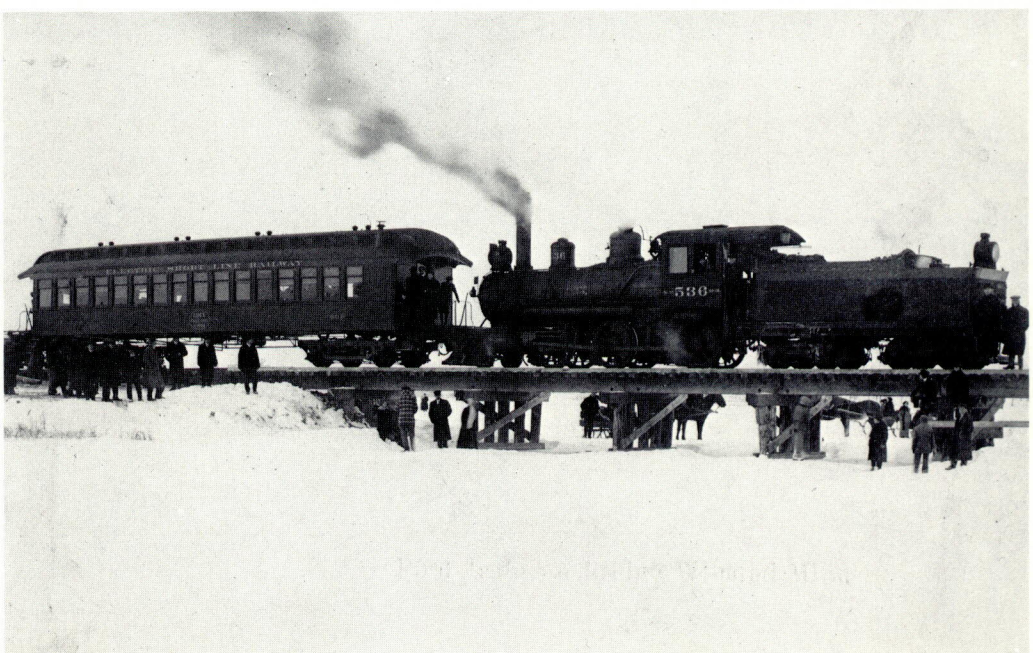


thing in that line that may be wished for. As a business center it is far superior to any town or city in this district, having many better and bigger business houses. It is taking on a gradual and steady growth, which will be hastened by the Electric Short Line.

THE CITY BY THE LAKE

Above: Reverse side of a mailing envelope used by the merchants of Winsted to promote their city and businesses. The map indicates the extent of proposed construction. This particular envelope was issued by the Peerless Clothing Store, Hans Brandser, Proprietor. (C. O. Brandser)

Center: Excavating a cut during construction of the track from Stubb's Bay to Winsted. (Fred Lhotka; C. O. Brandser collection)



Below: Ex Northern Pacific Ry. 2-6-0 locomotive 536 pushing the construction train over the trestle at Winsted. This style of passenger car was used as a trailer for the passenger motor cars. (Fred Lhotka; Francis B. Littfin collection)

None of this construction included overhead poles and trolley wire. Presumably the success of the Dan Patch Electric Lines in the operation of gasoline-electric passenger motor cars, coupled with the ever-present lack of funds, prompted the ESL Ry. to postpone electrification and begin operation with such equipment. However the "Luce Electric Lines" emblem appeared on all the passenger equipment.

The heterogeneous mixture of equipment owned by the company was apparently the result of acquiring what was deemed appropriate and necessary for the operation of a substantial railway between Minnesota and South Dakota. What actual use was made of much of this equipment, almost all of it acquired second-hand, is unknown. An equipment roster is presented separately at the end of this chapter due to its complexity. The reader may wish to refer to it at this point to properly appreciate the discussion that follows.

The carhouse and repair shops were originally located on the Electric Short Line Terminal Co. trackage where it crossed 6th Ave. No. in Minneapolis. The buildings constructed at this location included: Blacksmith Shop 16' x 20' completed in 1912; Oil House 14' x 16' completed in 1912; Engine House and Repair Shop 56' x 168' completed in 1915; and a Machine Shop 30' x 36' completed in 1919.

A Car Shed, 16' x 120', was completed at Stubbs Bay in 1916. Facilities at Hutchinson included a wye for turning the single end gasoline-electric motor cars.

An issue of the Brill Magazine in 1915 contained an article describing the operations of the line, which at that time had been completed only as far as Winsted. The population of Winsted was 400 persons; the only other intermediate towns of any size were Watertown, 600 persons, and Wayzata, 1150 persons. Pleasure resorts were located at Medicine Lake, Parker's Lake and Stubb's Bay (Lake Minnetonka) which produced substantial passenger traffic. The method of providing passenger service was reported as being the same as that employed by the Dan Patch Electric Lines: General Electric gasoline-electric passenger motor cars pulling trailers. These trailers were former steam railroad equipment, ranging from open platform cars with four-wheel trucks, to Pullman sleeping cars and parlor cars with six-wheel trucks. The sleeping cars were supposedly used only in limited service. Three through round trips were operated daily between Minneapolis and Winsted, with five additional round trips daily between Minneapolis and Stubb's Bay. Running time to Winsted was two hours. Thirty-five regular and flag stops were observed, averaging one stop per mile. Maximum speed attained was 50 m.p.h. Thirty-seven passenger cars (motor cars and trailers) were available but only twenty-nine cars were used in normal operations.

The town of Hutchinson was started by a roving group of town-founding evangelists known as the Hutchinsons. Both the Great Northern Ry. and the Milwaukee Road had by-passed the town during construction of their lines to the west. But the town was promoted with such zeal in its early days that it became a dominant community in the region. Thus each steam railroad subsequently constructed a branch line into Hutchinson. The ESL Ry. became the third railroad to serve the town which at this time had a population of 2368 persons. The timetable effective May 19, 1918, indicates that the following service was provided:

Minneapolis-Hutchinson: three passenger round trips, one daily, one daily except Sunday, and one Sunday only; one freight round trip, daily except Sunday.

Minneapolis-Stubb's Bay: two additional passenger round trips, one Saturday and Sunday only, and one Sunday only.

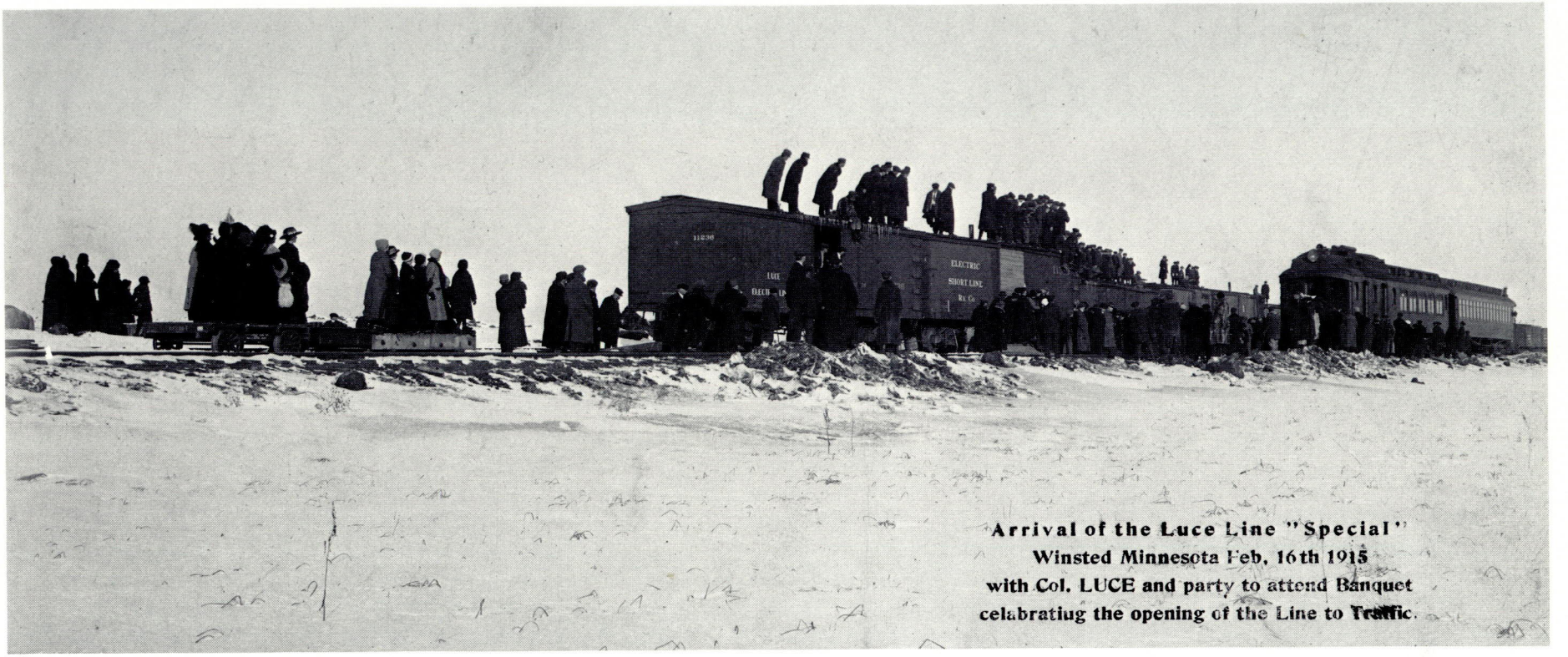
It will be noted that this service is less than that operated during 1915. The passenger service was operated with the gasoline-electric passenger motor cars pulling trailers, while the freight service was operated with steam locomotives. This era was the most colorful in the line's history.

ELECTRIC SHORT LINE RY. (Luce Electric Lines).

Adams Express — GENERAL OFFICES, Minneapolis

Sun. Sat.	5 Sun.	3 Sun.	Frt. ExSun	1 ExSun	9 Daily	Mls	570 5-19-1918	2 Daily	10 ExSun	Frt. ExSun	4 Sun.	SAT. Sun.	8 Sun.
PM 1 20	10 40	AM 8 10	7 30	11 00	♦ 4 20	0	Lv. Minneapolis Ar	10 15	7 05	5 30	1 00	3 45	7 55
1 30	10 50	8 19	7 55	11 09	4 29	3	Sixth Avenue	10 05	6 54	5 00	12 50	3 35	7 45
s 1 40	s11 00	s 8 28	.....	s11 18	s 4 38	5	Golden Valley	s 9 57	s 6 46	.....	s12 40	s 3 25	s 7 37
s 1 42	s11 02	s 8 30	s 8 10	s11 20	s 4 40	6	Winnetka	s 9 55	s 6 43	s 4 45	s12 38	s 3 23	s 7 35
s 1 48	s11 08	s 8 37	.....	s11 27	s 4 47	8	Medicine Lake	s 9 48	s 6 36	.....	s12 32	s 3 17	s 7 28
1 55	11 15	8 45	8 35	11 35	4 55	10	Parkers Lake	9 40	9 29	4 10	12 25	3 10	7 18
s 2 04	s11 24	s 8 53	s 8 45	s11 43	s 5 03	13	Wayzata 1150	s 9 32	s 6 20	s 4 00	s12 17	s 3 02	s 7 10
s 2 11	s11 31	s 9 01	s 8 55	a11 51	s 5 11	15	Meadowbrook	s 9 24	s 6 12	s 3 50	s12 10	s 2 55	s 7 01
s 2 13	s11 33	s 9 03	.....	s11 53	s 5 13	16	Long Lake 200	s 9 21	s 6 09	.....	s12 08	s 2 53	s 6 57
2 20	11 40	9 12	9 12	12 02	5 22	18	Stubbs Bay	9 12	6 00	3 40	12 00	PM 2 45	6 48
.....	.....	s 9 30	s 9 35	s12 20	s 5 40	24	Lyndale	s 8 54	s 5 40	s 3 05	.....	.....	s 6 31
.....	.....	9 44	9 55	12 34	5 54	31	Watertown 600	8 41	5 28	2 45	.....	.....	6 17
.....	.....	s 9 55	s10 20	s12 45	6 06	36	Hazelton	s 8 30	s 5 18	s 2 10	.....	.....	s 6 06
.....	.....	s10 08	10 35	12 58	6 19	41	Winsted 400	8 17	5 07	1 50	.....	.....	5 55
.....	.....	10 23	11 00	1 13	6 33	49	Silver Lake 475	8 02	4 51	1 13	.....	.....	5 40
.....	.....	10 40	11 30	1 30	♦ 6 50	58	Ar. Hutchinson 2368 Lv	AM 7 45	4 35	12 30	.....	.....	5 25

♦ Sat. lv Minneapolis 5.20 pm, ar Hutchinson 7.55 pm.

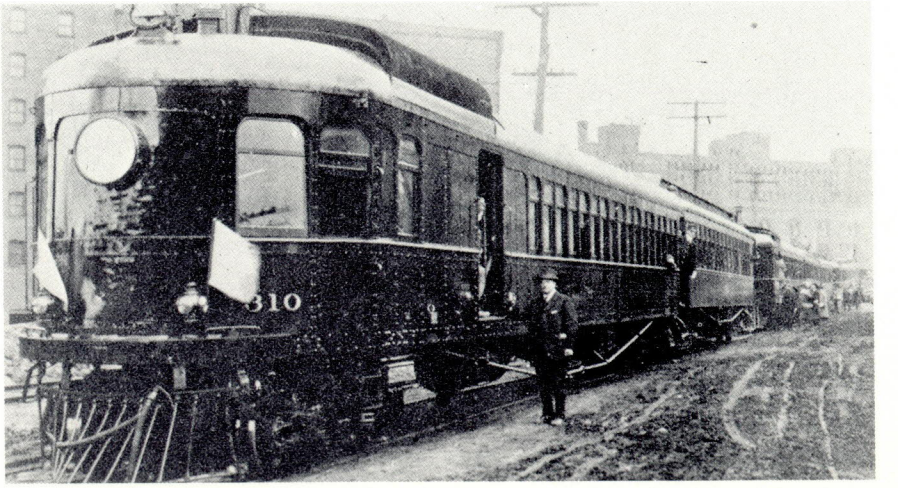


Arrival of the Luce Line "Special"
Winsted Minnesota Feb, 16th 1915
with Col. LUCE and party to attend Banquet
celabratiug the opening of the Line to Traffic.

First "Official Train" at Winsted, Minnesota.

Above and below left: (Fred Lhotka; C. O. Brandser collection)

Below right: A long line of passenger trains, each consisting of a motor car and trailer, loading at the Minneapolis station, 3rd Ave. N. and 7th St. N. In the early years of operation all extra excursion trains left from and arrived at Western (Glenwood) and Lyndale Avenues No. (Byron D. Olsen collection)



The remainder of the line's history is presented for the sake of completeness, to indicate how the road developed into a short line railroad and then declined to an industrial switching operation.

The original objective of the line had not been forgotten, and as soon as financial conditions permitted construction of the line westward was undertaken. Trackage was completed from Hutchinson to Cosmos, 18.00 miles, during 1922, and from Cosmos to Lake Lillian, 8.34 miles, during 1923. Total cost of the extension, as of June, 1923, was $476,230.77. Insufficient revenue quickly created financial complications resulting in the sale of the ESL Railway under mortgage foreclosure proceedings at public auction held in April, 1924. The bondholders' committee had incorporated the Minnesota Western Railroad in April, 1924, and being the successful bidders at the auction, transferred the property to the Minnesota Western R.R. It was reported that the line cost approximately $2,000,000 to build and was purchased by the bondholders for $275,000.00. Apparently any thoughts of electrification were forgotten and any reference to them eliminated from the corporate name; from now on it was strictly railroading. It is not known whether the Luce family lost control of the company at this time or in 1927.

During 1927 the extension of the line westward toward Montevideo was undertaken. A mortgage bond issue in the amount of $600,000 was sold to finance the construction. Trackage was completed during 1927 from Lake Lillian to Gluek, 30.67 miles, but at a cost of $612,399.48. It was impossible to secure additional financing and by force of circumstances Gluek became the western end of the line. An agreement was entered into during 1927 with the Minneapolis Northfield & Southern Ry. (successor to the Dan Patch Electric Lines) whereby the officers of that company would manage and operate the Minnesota Western R.R. Under the management headed by Harry E. Pence, track ballasting was undertaken on the entire line, freight service promoted and increased, and grain elevators and stock handling facilities constructed in many towns along the line. This management and operation agreement was to continue until 1956.

The 1927 mortgage bonds were foreclosed during 1932 and ownership was transferred to the Minnesota Western Railway which had been incorporated in October, 1932. Cargill Inc. subsequently acquired ownership of the property; as one of the world's largest grain wholesalers it planned to build a large grain terminal at Gluek where grain would be centrally stored then shipped by train to Minneapolis. The name of Gluek was changed to Wesota in accordance with the plans. But construction never materialized and Wesota once again became Gluek.

Operations continued through the years with the freight service operated by steam locomotives rented from the M. N. & S. Ry. Passenger service was never substantial enough to require more than gasoline-electric motor cars and an occasional trailer. Passenger service was discontinued during the 1940's and the steam locomotives replaced with modern diesel-electric road-switchers.

The Minneapolis, Northfield & Southern Ry. formally acquired the Electric Short Line Terminal Co. from the Minnesota Western Ry. on December 28, 1955, and merged it with the M. N. & S. Ry. on September 4, 1956. (This included the terminal building and the line from downtown Minneapolis to Glenwood Junction.) The Minneapolis & St. Louis Ry. purchased all the outstanding stock of the Minnesota Western Ry. on August 3, 1956, thus ending the management and operation of the M.W. Ry. by the M. N. & S. Ry.

The name of the M. W. Ry. was changed to the Minneapolis Industrial Ry. in September, 1959. On November 1, 1960, the Chicago & Northwestern Ry. acquired the M. & St. L. Ry., the purchase including the Mpls. Industrial Ry. During June, 1967, operations ceased between Hutchinson and Gluek. Formal abandonment of the 104 miles of track from Plymouth (Parker's Lake) to Gluek occurred in 1972. The remaining portion from Glenwood Junction to Plymouth serves numerous on-line industries and thus survives for industrial switching purposes only. Interestingly, this remaining service continues to be worked by M. N. & S. crews, albeit using C. & N. W. equipment.

Equipment of the Electric Short Line Ry.

Annual reports furnished to the Minnesota Railroad & Warehouse Commission indicate the wide variety of equipment owned as well as the growth in the character of the operations provided.

June 30, 1914:

4 passenger motor cars, 18 passenger trailers, 8 box cars, 7 flat cars, 4 gondola cars and 1 caboose.

June 30, 1915:

6 passenger motor cars, 17 passenger trailers, 89 freight cars, and 2 steam locomotives.

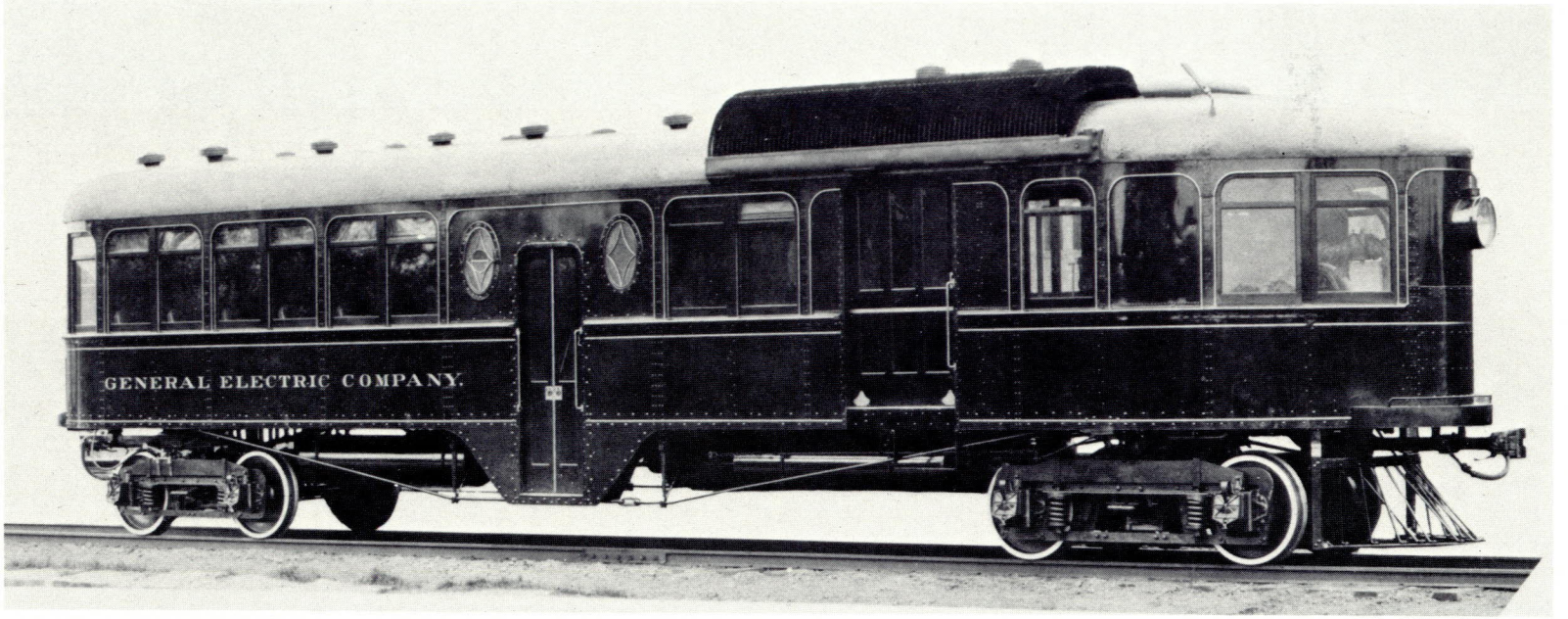
June 30, 1916:

6 passenger motor cars, 14 passenger trailers, 1 combination car, 1 parlor car, 3 sleeping cars, 135 box cars, 12 stock cars, 26 coal cars, 1 tank car, 4 refrigerator cars, 15 flat cars, 20 ballast cars, 1 steam shovel, 1 caboose, and 4 steam locomotives. (The 4 locomotives consisted of one 0-6-0 of 36 tons, one 2-6-0 of 58 tons, and two currently acquired 2-6-0's of 102 tons each.)

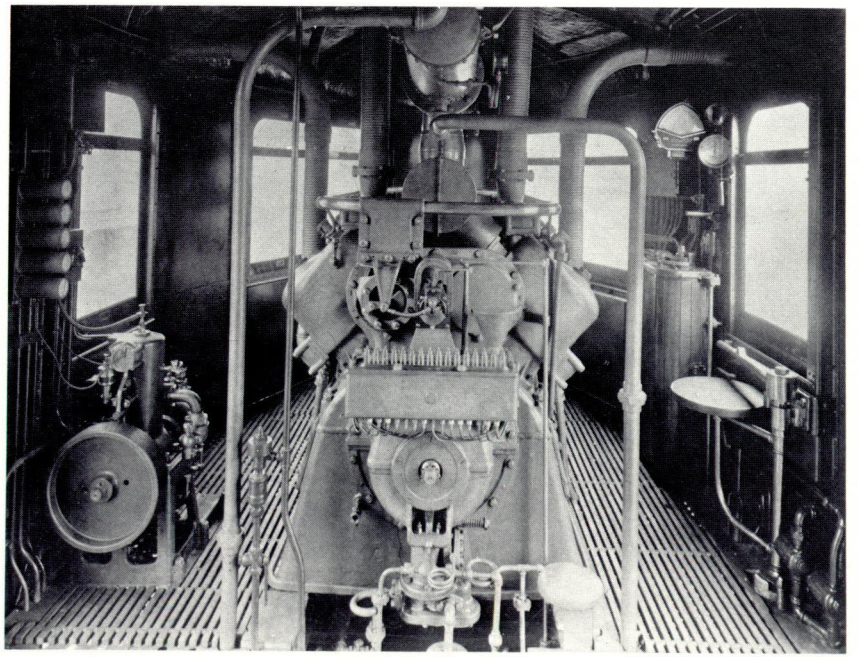
December 31, 1917:

3 passenger motor cars, 1 baggage & express car, 14 passenger trailers, 1 combination trailer, 1 parlor car, 2 sleeping cars, 135 box cars, 14 stock cars, 25 coal cars, 1 tank car, 4 refrigerator cars, 15 flat cars, 20 ballast cars, 1 steam shovel, 1 caboose and 3 steam locomotives. (The 0-6-0 locomotive was listed as being retired during the year.)

Much additional information has been located on the equipment, some of which creates conflicts and confusion. It is presented vertabim without attempts at reconciliation or explanation.



Above: General Electric Co. demonstrator 3 which eventually became ESL Ry. 300.
Below left: Interior of the engine room of 300, looking toward the front.
(Both photographs General Electric Co.; Raymond F. Corley)



Above: Passenger motor car 302 pulling two passenger trailers. ESL Ry. had "resorts" at Medicine Lake (140 acres of picnic grounds), Parker's Lake (30 acres of wooded grove, sandy beach with bath house, large pavilion with dance floor, rowboats, fishing tackle and bait), and Stubb's Bay (20 acres of picnic grounds, dancing, boating and bathing). (Byron D. Olsen collection)

General Electric Co. records on the gasoline-electric passenger motor cars provide the following information:

No.	G.E. Serial No.	Date	Type	Engine		Motors	Seats	Weight Tons	Note
300	3703	5-1909	CE50B5½	GM-16C1	2	G.E. 205	45	38	1
302	3777	2-1906	RE65B13½	GM-16C1	2	G.E. 69B	40	61	2
306	3778	8-1914	RE70B11	GM-16C3	2	G.E. 205	?	52	
308	3779	3-1915	RE70B11	GM-16C3	2	G.E. 205	?	52	
310	3745	4-1913	RE70B11	GM-16C1	2	G.E. 205	?	50	3
312	3792	8-1916	RE70B11	GM-16C10	2	G.E. 205	?	?	4
36	3743	5-1913	RE70B11	GM-16C1	2	G.E. 205	91	49	5
38	3746	4-1913	RE70B11	GM-16C1	2	G.E. 205	91	49	6
?	3776	7-1914	RE70B11	GM-16C3	2	G.E. 205	?	52	7

NOTES

1. This was originally General Electric Co. demonstrator #3 built as Type CE50B8 and equipped with a GM-10B1 engine. It was rebuilt January, 1912 as Type CE50B6 and assigned serial number 3703. ESL Ry. acquired the car in 1914 at which time it was re-engined with a GM-16C1 engine and designated Type CE50B5½.
2. This was General Electric Co.'s first gasoline-electric car. The car was a Delaware & Hudson R.R. Barney & Smith wood passenger-baggage car arranged with motorman's compartment, engine room, baggage room, smoking compartment, and passenger compartment. Seating capacity was 40 persons including 12 in the smoking compartment. The gasoline engine was a 6 (horizontally-opposed) cylinder, 140 h.p. unit started by a blank cartridge, driving one G.E. 120 KW 600 volt D.C. generator with a separate 5.5 KW 110 volt compound-wound exciter. Two G.E. 69B motors (75 h.p. each) were installed on the front truck. As completed the car weighed 68 tons. It was operated in 1906 on the Delaware & Hudson's Saratoga-Schenectady branch line as their 1000. The car was too heavy for the power available; slow acceleration caused schedule keeping problems, and it could not pull trailers. It was removed from service and returned to G.E. in 1906. The car was rebuilt in June, 1914, equipped with a GM-16C1 engine and the usual roof-type finned-tube radiators, designated as serial number 3777 and sold to the ESL Ry.
3. Car 310 was G.E. stock car #24.
4. Car 312 was sold to the Midland Valley R.R. (their 3) before June, 1919.
5. Car 36 is ex-Chicago Peoria & St. Louis Ry. 103.
6. Car 38 is ex-Chicago Peoria & St. Louis Ry. 102.
7. The last car listed was sold to the Minnesota Northwestern Electric Ry. (their 101) prior to 1920.

Car 304 was a passenger-baggage motor car built in 1913 or 1914 by the Drake Railway Automotrice Co., Chicago, which introduced its first cars in November, 1912, on the Missouri, Oklahoma & Gulf Ry. The cars were of wood construction, 56'0" long and 9'6" wide overall. St. Louis Car Co. built the bodies and furnished St. Louis MCB trucks with two Westinghouse 305 (60 h.p.) motors on the front truck. A 90 h.p., 6 cylinder, gasoline engine (started by cranking) was direct-connected to a 55 KW generator. The water cooling system was installed on the roof, the water being circulated by a geared positive pump. Car heating was obtained from the engine coolant but in addition a Peter Smith heater was located in the baggage compartment as an adjunct to the heating system. The baggage compartment and combined engine-control room was located at the front end of the car and a control cab, for double end operation, at the rear end. The passenger compartment seated 44 persons. Total weight of the car was 65,000 lbs. Top speed was 35 to 40 m.p.h. and maintaining a schedule speed of 25 m.p.h. fuel consumption was 2½ to 3½ miles per gallon of gasoline. The car could be used to haul freight cars at much slower speeds.

A McKeen gasoline-mechanical passenger motor car was acquired from the Soo Line Ry. in 1916. Built in 1914 as their #1, it was operated on the line to Winnipeg but found unadaptable to that type of service.

Two gasoline-electric passenger motor cars were reported as destroyed by fire, one car in 1916 and the other in 1918. Ex-Northern Pacific Ry. 536, a 2-6-0 steam locomotive, was used in construction of the line and supposedly acquired by the company. Two steam locomotives were purchased from the Soo Line Ry. at an unknown date; 143 and 146 were 2-6-0 compounds built by American Locomotive Co. in 1907.

As of June 30, 1920, the company was required to submit to the Minnesota Railroad & Warehouse Commission a detailed equipment listing. While extremely interesting, it adds to the confusion surrounding some of the equipment. The data has been condensed as follows.

4 Steam Locomotives (all acquired second-hand): 5, Schenectady, 1891, 0-6-0, 42 tons; 6, Baldwin, 1888, 2-6-0, 66 tons; 201 H.K. Porter 1914 2-6-0, 76 tons (acquired from the Dan Patch Electric Lines in 1916); and one air-operated Flanger.

3 Roadway Equipments:
1 Ditcher, American Hoist & Derrick Co., 1916;? Ballast Spreader, Robinson Cary & Sands Co., 1916; and 60, Centre Ballast Plow, Barnhart-Marion Steam Shovel Co., 1908 (acquired second-hand).

180 Freight Cars (all acquired second-hand): 8 Flat Cars 33' long, numbered from 4 to 302; 8 Flat Cars 34' long, numbered from 201 to 1589; 23 Gondola Cars 34' long, numbered from 1407 to 1999; 42 Box Cars 35' long, numbered from 7048 to 11992; 63 Box Cars 37' long, numbered from 12000 to 14172; 4 Furniture Cars 43' long, numbered 28068, 28101, 28123, 28144; 10 Automobile Cars 41' long, numbered from 28005 to 28147; 4 Refrigerator Cars 35' long, numbered 52187, 52379, 52440, 52448; 17 Stock Cars 34' to 37' long, numbered from 32129 to 32500; and 1 Caboose 25' long, numbered 101.

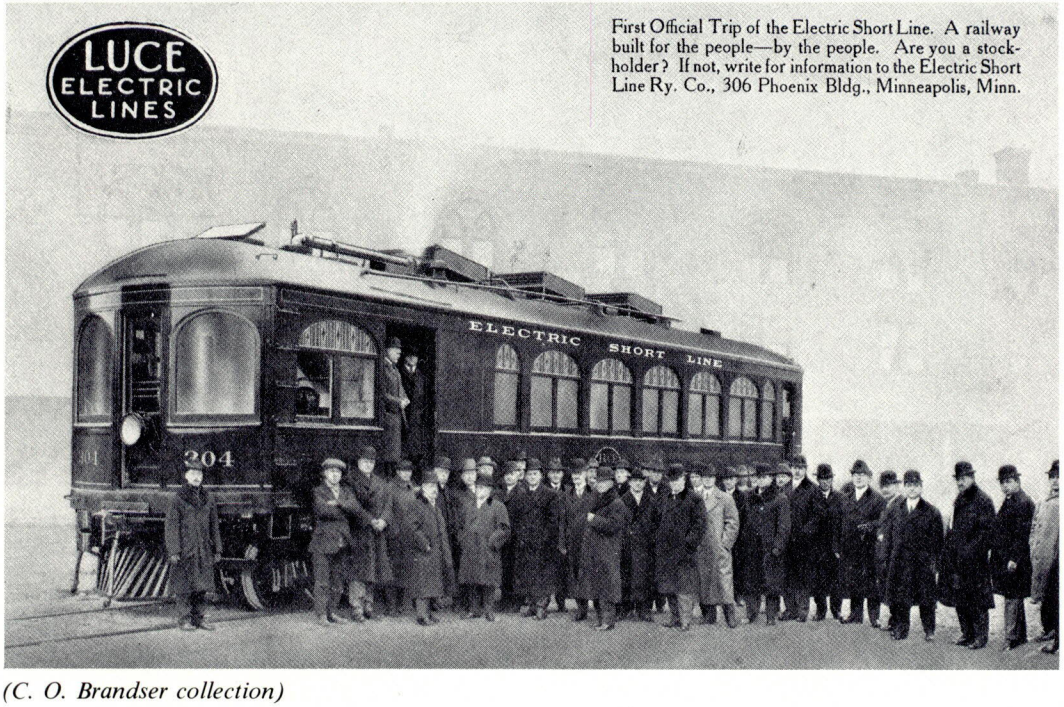
21 Passenger Cars (trailers) (all acquired second-hand): 1 Sleeping Car 56' long, six wheel trucks, Pullman 18??, numbered 611; 2 Sleeping Cars 64' and 66' long, six wheel trucks, Pullman 1890, numbered 691 and 692; 4 Passenger Cars 45' long, four-wheel trucks, numbered 653, 685, 689 and 690; 9 Passenger Cars 48' to 51' long, four-wheel trucks, numbered 608, 612, 615, 617, 619, 621, 636, 653, and 654; 1 Passenger Car 52' long, four-wheel trucks, numbered 614; 1 Passenger-Baggage Car 53' long, four-wheel trucks, numbered 54; 1 Baggage Car 35' long, four-wheel trucks, wood construction, Brill 1912, numbered 55; and 2 Baggage Cars 39' long, four-wheel trucks, wood construction, numbered 51 and 53.

3 Passenger Motor Cars: 1 Gasoline Motor Car 70' long, Passenger-Baggage, steel construction, McKeen Motor Car Co. 1914, numbered 1 (capacity 84 persons, weight 77,100 lbs.); and 2 Gasoline-Electric Motor Cars 66' long, steel construction (capacity 91 persons), General Electric-Wason 1915, numbered 306 and 308.

18 Work Cars (all acquired second-hand): 17 Rodgers Ballast Cars 34' long, built 1901, numbered from 4225 to 4601; and 1 Rodgers Ballast Car 34' long, equipped with Snow Plow, numbered 4315.

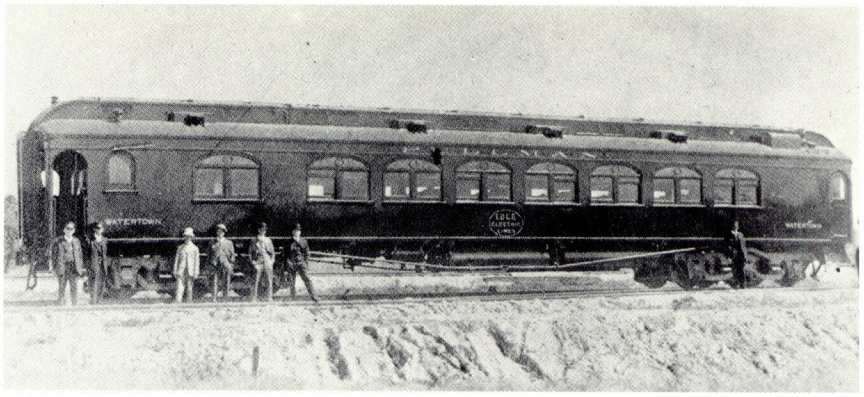
According to Minnesota Western Ry. records, steam locomotives 143 and 146 were retired in 1932 and 201 was retired in 1934. As of April 1, 1931, five gasoline-electric passenger motor cars were owned, apparently numbered 30, 32, 34, 36 and 38, all of General Electric-Wason manufacture, and weighing 51 tons. 36 and 38 were originally built in 1913. The disposition of 34 was not recorded; 30 and 32 were retired in 1936, 36 retired in 1942, and 38 was retired in 194?, the last car to operate passenger service over the line.

39 was a gasoline-electric passenger motor car originally built by Pullman-Standard in 1926, which was acquired from the Detroit Toledo & Ironton R.R. in 1940 to "modernize" passenger service. The car was subsequently destroyed by fire.

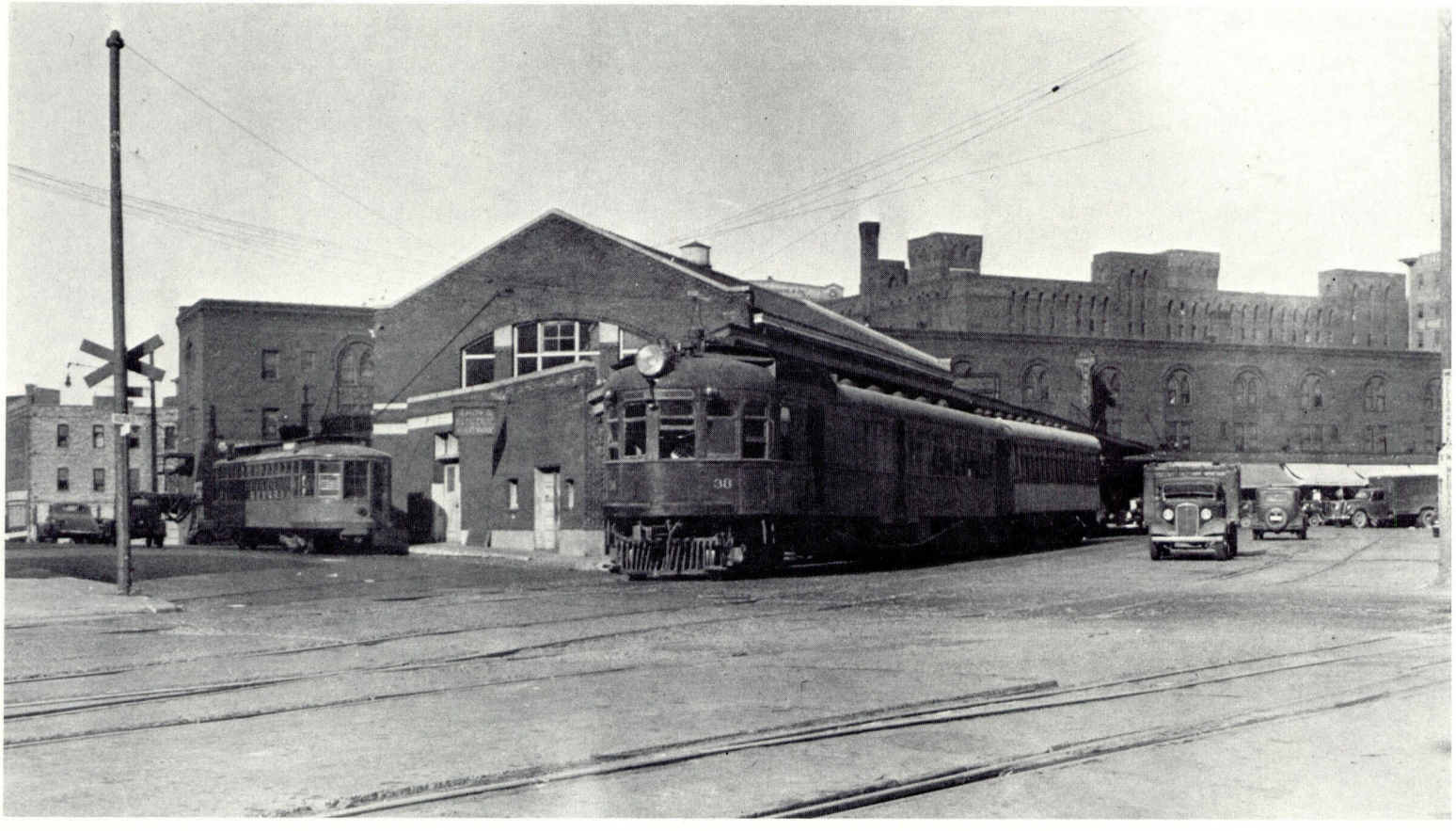


(C. O. Brandser collection)

Right: Pullman sleeping car "Watertown", also equipped with kitchenette, parlor, dining room, state room and baths. In the early years they were offered for charter by the day, week, or month, for placing on side tracks at various points overlooking Lake Minnetonka as vacation quarters. (Joe Hutchinson collection)



Below: Minnesota Western Ry. 38 with a former Dan Patch Electric Lines passenger trailer loading at the Minneapolis station. An electric car of the Minneapolis, Anoka & Cuyuna Range R. R. loads on the wye at the opposite side of the building. (Minnesota Historical Society collection)



ALL TRAINS RUN DAILY—EXCEPT SUNDAY.						
EAST BOUND (Read Down)				WEST BOUND (Read Up)		
Train No. 3	Train No. 1	Miles	STATIONS	Miles	Train No. 2	Train No. 4
3:30 p. m.	7:30 a. m.	0.0	THIEF RIVER FALLS	18.3	9:40 a. m.	5:45 p. m.
3:40	7:43	4.2	STOP No. 4	14.1	9:25	5:20
3:42	7:46	5.1	STOP No. 5	13.2	9:22	5:18
3:45	7:50	6.1	SILVERTON	12.2	9:20	5:15
3:47	7:53	7.1	STOP No. 6	11.2	9:17	5:12
3:49	7:56	8.1	STOP No. 7	10.2	9:15	5:09
3:51	7:59	9.1	STOP No. 8	9.2	9:12	5:07
3:54	8:02	10.1	STOP No. 9	8.2	9:10	5:04
3:57	8:05	11.1	STOP No. 10	7.2	9:07	5:02
4:00	8:10	12.1	MAVIE	6.2	9:05	5:00
4:02	8:12	13.1	STOP No. 11	5.2	9:02	4:55
4:04	8:15	14.1	STOP No. 12	4.2	9:00	4:52
4:07	8:17	15.1	STOP No. 13	3.2	8:57	4:49
4:09	8:20	16.1	STOP No. 14	2.2	8:55	4:46
4:11	8:22	17.1	STOP No. 15	1.2	8:52	4:43
4:20	8:30	18.3	GOODRIDGE	0.0	8:50	4:40

MINNESOTA NORTHWESTERN ELECTRIC RY.

Thief River Falls to Goodridge, Minn.

This company was incorporated in October, 1913, by Daniel Shaw, F.D. Brandenburg and H.W. Protzeller. Construction began March, 1914, on 18.56 miles of line from Thief River Falls, a Soo Line Ry. division point, through Silverton and Mavie to Goodridge, using 60 and 72 lb. rail. Evidently the proposed goal was International Falls, a lumbering town 150 miles distant on the Canadian border. (The 1917 population of Thief River Falls was 3,714 persons and International Falls 1,487.) The Soo Line Ry. was very much interested in this proposed connection and when financial complications arose, advanced funds sufficient to complete construction to Goodridge. Connection with the Soo Line was made in Thief River Falls and their depot used for the terminal. Offices were located at the corner of 2nd and Labree Avenues in Thief River Falls, and the carhouse-repair shop southeast of the Soo Line roundhouse. A gasoline-electric passenger motor car was purchased for $26,094 and operations began October 12, 1914.

According to Minnesota Railroad & Warehouse Commission records the cost of construction amounted to $168,362.61. The Soo Line Ry. acquired title to the property on February 9, 1915, in exchange for the funds advanced for construction, which, according to Soo Line records, amounted to $177,892.61. The property was leased back to the Minnesota Northwestern Electric Ry. as of that same date. Officers of the company were Daniel Shaw (President and Treasurer), D.N. Winton (Vice President), and H.W. Protzeller (Secretary, General Manager and Purchasing Agent).

Two proposed routes were considered to International Falls. The most direct route traversed the swamps of Beltrami and Koochiching counties to International Falls. The other route was more circuitous, following the Baudette River to the Rainy River and thence along the American side of the Rainy River joining the first proposed route south of Loman. A 1926 State Auditor's land map showed a more specific version of the most direct route, connecting at Loman with the Minnesota Dakota & Western Ry. instead of building its own line into International Falls. The projected extension was never undertaken. The swamp lands that dominate the route are largely uninhabited to this day, and the 1970 population of Goodridge is only 144 persons.

As of December 31, 1919, first main track was 18.67 miles, sidings 1.46 miles, and total track 20.13 miles. Equipment consisted of the one gasoline-electric passenger motor car and four miscellaneous trailers. The motor car was 101, a General Electric-Wason product, built during July, 1914, as their serial number 3776, and supposedly acquired second-hand from the Electric Short Line Ry.

Operations consisted of three daily round trips. The passenger motor car pulled the occasional freight cars necessary to service the little freight traffic generated by the dairy and farming country through which the line ran. The 1931 timetable indicated that two daily — except Sunday — round trips were operated; this was later reduced to one daily round trip. However trucks and automobiles offered increasing competition, with the result that the last operation took place March 15, 1940.

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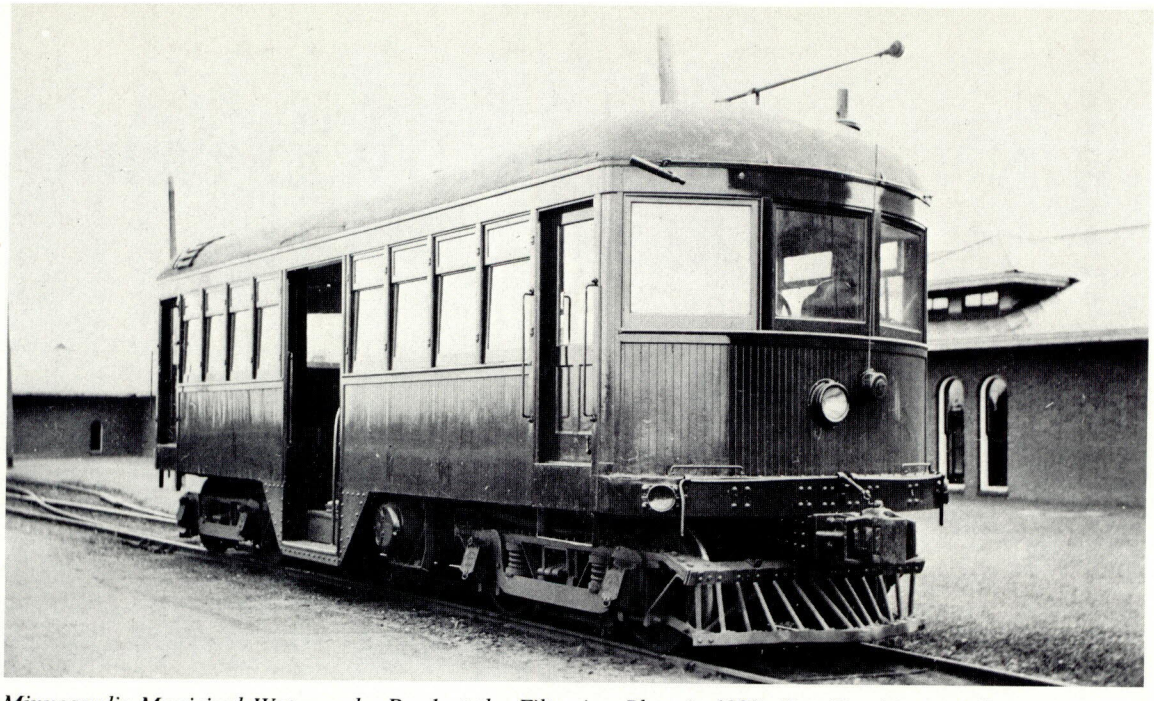
Passenger motor car 101. (Joe Hutchinson collection)

Facing Page

Minnesota Northwestern Electric Ry. Timetable No. 1.



Minneapolis Municipal Waterworks Ry. 1 at the Filtration Plant in 1939. (Joe Hutchinson collection)

SECTION VI
INDUSTRIAL RAILWAYS
1. MINNEAPOLIS MUNICIPAL WATERWORKS RY.

Columbia Heights, Minn.

When the City of Minneapolis constructed a water purification plant in the suburb of Columbia Heights, adjacent to northeast Minneapolis, freight was hauled by teams and trucks from a siding on the Soo Line Ry. to the plant, a distance of about 1½ miles on a heavy grade. It was decided to construct an electric railroad from the steam railroad siding to the plant. The line was designed by F.W. Cappelen, Minneapolis City Engineer, and constructed by Waterworks Department day labor, except for the laying of rails and stringing of overhead trolley wire and feeder cables which was done by the Minneapolis St. Ry. Statistics on the construction were:

1. approximately 8,000 L.F. of main line track plus 2,000 L.F. of construction and passing tracks;
2. 6" crushed rock base, crushed rock ballast, 6" x 8" x 8' sawed red oak ties, and 7" 80 lb. T rail (copper bonded) on tangents; curved track construction consisted of 7" 127 lb. MCB flange rail inside and 91 lb. T rail outside;
3. 7" 30' cedar overhead line poles; feeder cable was connected to the Minneapolis St. Ry. system with power furnished under contract by MSR;
4. elevation was 0.0 at Reservoir Boulevard and Central Ave., and 123.4 at the plant; grades ranged from 2% to 5%;
5. a one stall frame carhouse with concrete pit was built near the plant.

The line was completed in October, 1917, and opened for service during November. At the time of completion it was referred to as the Minneapolis Filtration Plant Ry. Data reported in the U.S. Censuses was always listed under the title Minneapolis Municipal Waterworks Ry.

The only piece of equipment owned by the line was car 1 built by McGuire-Cummings Mfg. Co., Paris, Illinois, during 1917 according to designs furnished by the Minneapolis City Engineer. The car was designed for carrying passengers as well as pulling railroad freight cars; equipped for double end operation, the motorman's cab doors and passenger entrance/exit doors were located on one side of the car only. The reason for this was that the operation was over side-of-the-road track with heavily wooded areas adjacent to the other side of the track. Data on the car were as follows: McGuire trucks with four General Electric 73 motors (75 h.p. each); Type M multiple unit control with two C-101-A master controllers; combination automatic and straight air brakes; MCB couplers; seated 36 persons, weighed 43,000 pounds, and was painted maroon with yellow window sash, and black bumpers, roof and underbody equipment.

The car could handle one loaded car per trip up the grade to the plant, and several empty cars down grade. The track ended at the head house of the filter plant where deliveries of coal, powdered alum, chlorine, ammonia, and a special sand (from the Mississippi River for use in the filters) could be made directly to bunkers and bins. A passing track allowed the motor car to run around the loaded freight cars. Branch tracks were for construction deliveries and switching purposes. The car operated during the morning and evening shift changes providing free transportation for the employees from the plant to the Minneapolis St. Ry. line on Central Ave. at 37th Ave. N.E. The freight shipments were handled during the middle of the day between shift changes.

Passenger service was subsequently made available to the general public as the area gradually built up with residences.

The first passenger schedule operated for the benefit of the public was as follows:

Leave Filtration Plant: 7:30 A.M., 8:00 A.M., 11:30 A.M., 1:45 P.M., 3:30 P.M., 4:00 P.M., 4:45 P.M., 5:30 P.M., and 6:30 P.M. (Sundays only).

Leave 37th Ave. N.E. and Central Ave.: 7:45 A.M., 8:15 A.M., 11:45 A.M., 2:00 P.M., 3:45 P.M., 4:15 P.M., 5:00 P.M., 5:45 P.M., and 6:45 P.M. (Sundays only).

The fare charged was 3 cents one way. Freight switching was performed between passenger trips; usually only one round trip for freight purposes was required each day. The last passenger schedule in effect was operated from June 16, 1941, until May 1, 1948:

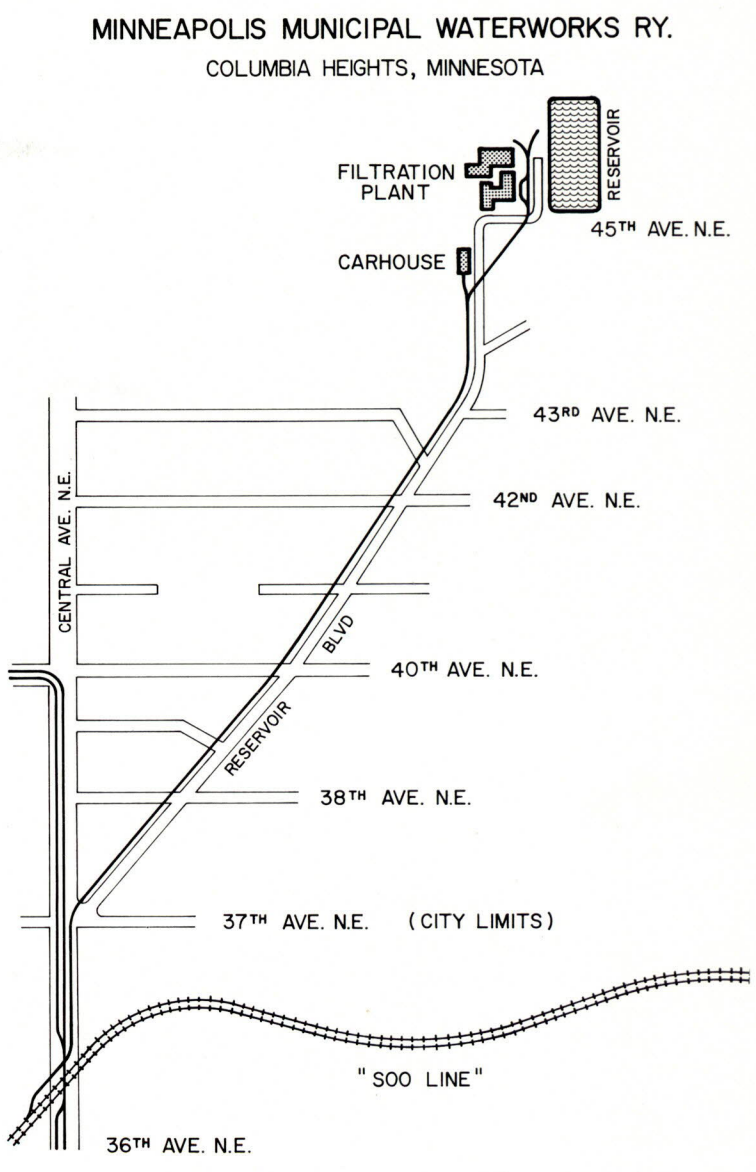
Leave Filtration Plant: 7:30 A.M., 8:00 A.M., 12:00 Noon, 1:45 P.M., 3:30 P.M., and 4:00 P.M. daily. An additional trip was operated at 4:45 P.M. on weekdays only.

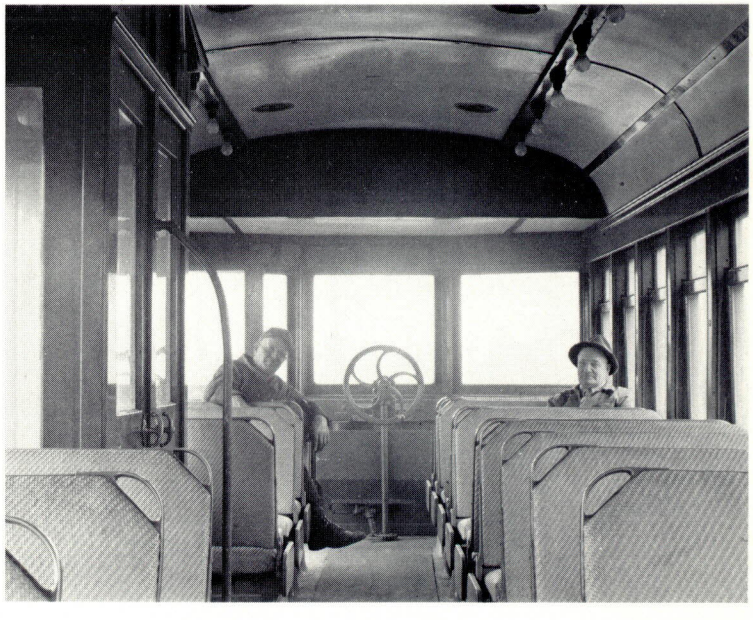
Leave 37th Ave. N.E. and Central Ave.: 7:45 A.M., 8:15 A.M., 12:15 P.M., 2:00 P.M., 3:45 P.M., and 4:15 P.M. daily. An additional trip was operated at 5:00 P.M. on weekdays only. The fare was still only 3 cents!

Figures taken from the various U.S. Census publications give a picture of the operations of this highly interesting little electric railroad, one of the shortest in the United States.

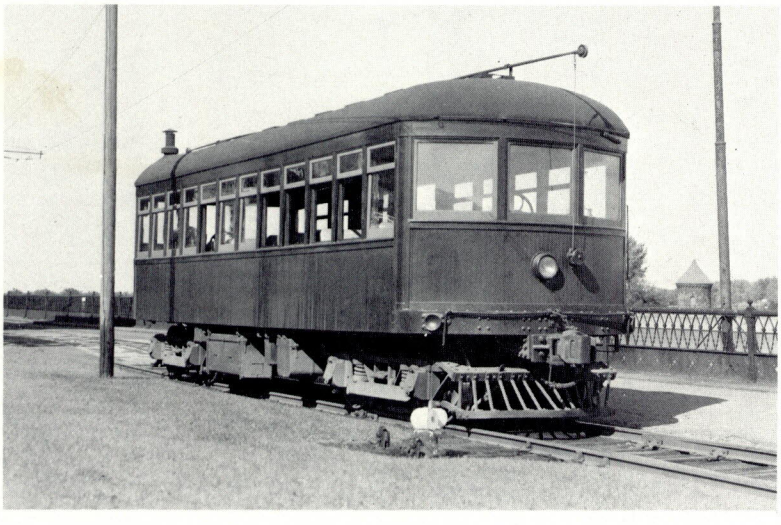
First track 1.50 miles, sidings .10 miles, total track 1.60 miles. (Engineering drawings give the exact mileage as 1.583 miles.)

	1927	1932
KWH of electricity consumed	34056	32000
Employees carried free	14600	23424
Fare paying passengers carried	5681	2488
Total passengers carried	20281	25912
Car miles operated	8760	8784
Revenue (Passengers)	$ 170	$ 74
Expenses	$4662	$4720
Deficit	$4492	$4646





Interior of #1 looking toward the "B" end. Controls were located on the "gate side" at each end. Reversible seats were provided for the double end operation. Note details of the unusual center entrance. Motorman Myron Handy is seated on the right. (James Foster collection)



Above: A car of empty chlorine cylinders is being moved downgrade along Reservoir Blvd. to the Soo Line Ry. interchange on May 17, 1951. (Herman Rinke)

Left: "Pole side" of #1, spotted beside the reservoir at the Filtration Plant. (William J. Olsen)

Servicing and minor repairs to the car were made in the carhouse. Major repairs and overhauls were performed by Twin City Rapid Transit Co. at its Snelling Shops in St. Paul. Since there was no switch connecting the two lines, only a crossing, the procedure followed to switch cars between tracks was to derail the car, then rerail it, one truck at a time, from one track to the other. Minneapolis St. Ry. usually supplied one of its double end cars for passenger service (usually 847 or 876, and later 4) during such overhaul periods while the Soo Line Ry. performed freight switching with a steam locomotive.

The line's only motorman from 1917 until 1952 was Myron Handy, a former Soo Line fireman and Mpls. St. Ry. motorman.

An unusual incident occurred toward the end of operations when the car got away unattended at 37th and Central, ran downhill on Central Ave., through the derail (without difficulty) at the Soo Line Ry. connection, and on down the Soo Line main tracks until the automatic air applied the brakes. Frantic searching finally located the car and a Soo Line switcher pushed the undamaged car back to its own track.

Passenger service was discontinued on May 1, 1948, but freight operations continued. When Minneapolis St. Ry. announced its intention of abandoning the streetcar line on Central Ave., the city decided it was not feasible to purchase power from another source and prepared to discontinue rail operation in favor of trucks. The last trip was made on Friday, May 15, 1953.

Car 1 was subsequently sold to the Sam Bloom Iron & Metal Co., 1600 2nd St. N., Minneapolis. On August 20, 1953, it was pulled out of the carhouse by a truck, then coasted downhill to the Soo Line Ry. connection where a railroad switcher hauled it to the scrap yard. The car was supposedly sold later to a contractor for use as a railroad construction office.

2. CENTRAL WAREHOUSE CO.

St. Paul, Minn.

This company constructed a large warehousing facility involving numerous buildings in the Midway district of St. Paul west of the Minnesota Transfer Ry. yards. Services provided include cold storage, merchandise storage, pool car distribution, and local cartage. Approximately 2¾ miles of industrial sidings were owned by the company over which switching was performed by the Minnesota Transfer Ry. The President of Central Warehouse Co. in 1916 was C.P. Bratnober who also happened to be President of the Minneapolis, Anoka & Cuyuna Range Ry. and Receiver of the Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Co. (Dan Patch Electric Lines).

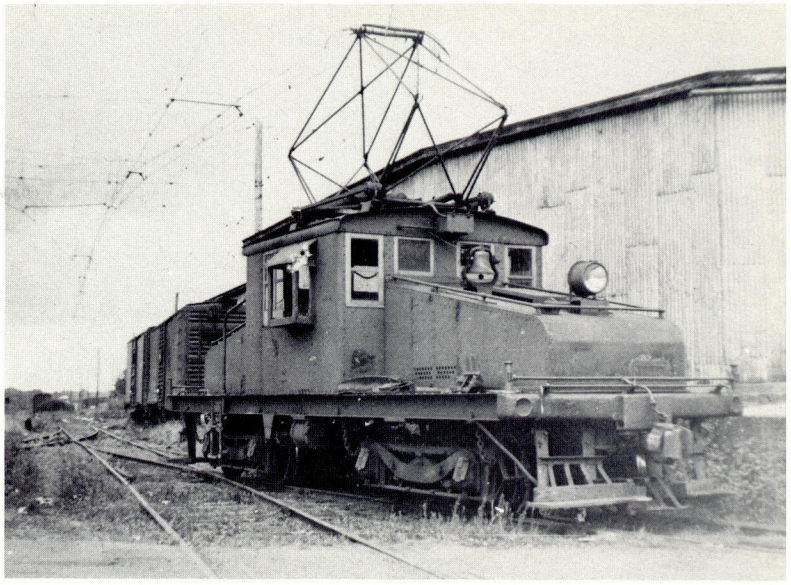
Presumably through Mr. Bratnober's efforts, Central Warehouse Co. acquired Dan Patch Electric Lines' pioneer gasoline-electric freight locomotive 100 in 1917 for use in performing its own switching over its industrial sidings. However during 1918, a decision was made to electrify all of the industrial trackage. $35,000 was spent for erection of overhead and construction of power facilities. Power was purchased from Northern States Power Co. at 4100 volts A.C. and converted to 600 volts D.C. An additional $28,000 was spent on purchasing a new steeple-cab electric locomotive as well as converting 100 to straight electric operation.

The electric locomotive was purchased from the General Electric Co. and equipped with a pantograph. Technical data on the locomotive was as follows: Builder's serial number 7597, class 404E100, built Sept., 1919; Alco RM-63B trucks with four G.E. 257A motors, 145 h.p. each; Type M multiple unit control with one C-90-A master controller.

In 1922 the ex-Dan Patch Electric Lines locomotive #100 was sold to the Minneapolis Anoka & Cuyuna Range Ry.

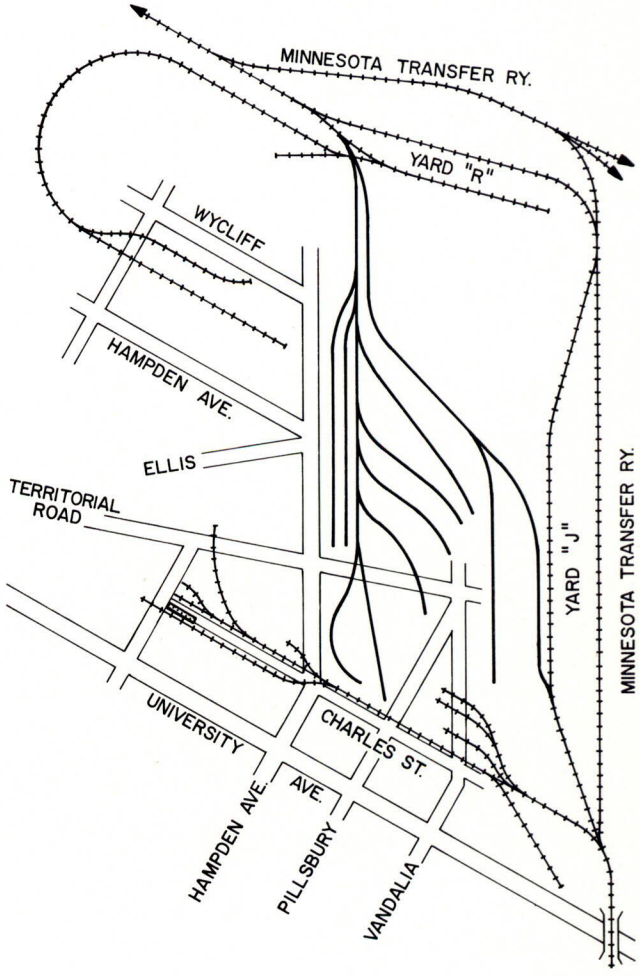
In 1951 the decision was made to discontinue the electrification and replace the electric locomotive with a General Electric Co. 44 ton diesel-electric switching locomotive. Upon arrival of the new unit, the overhead was dismantled. On June 20, 1951, the electric locomotive was sold to a business firm in St. Louis, Missouri, for use in South America.

Today Central Warehouse Co. continues in business actively using the same G.E. 44 ton diesel-electric locomotive. Perhaps a record of sorts has been established here, as the company has operated only General Electric Co. locomotives, of gasoline-electric, straight electric and diesel-electric design.



The electric locomotive switching on a typical section of warehouse trackage. Note the catenary overhead. (Norman F. Podas)

CENTRAL WAREHOUSE CO.
ST. PAUL, MINNESOTA 1954



3. IRON ORE MINING RAILWAYS

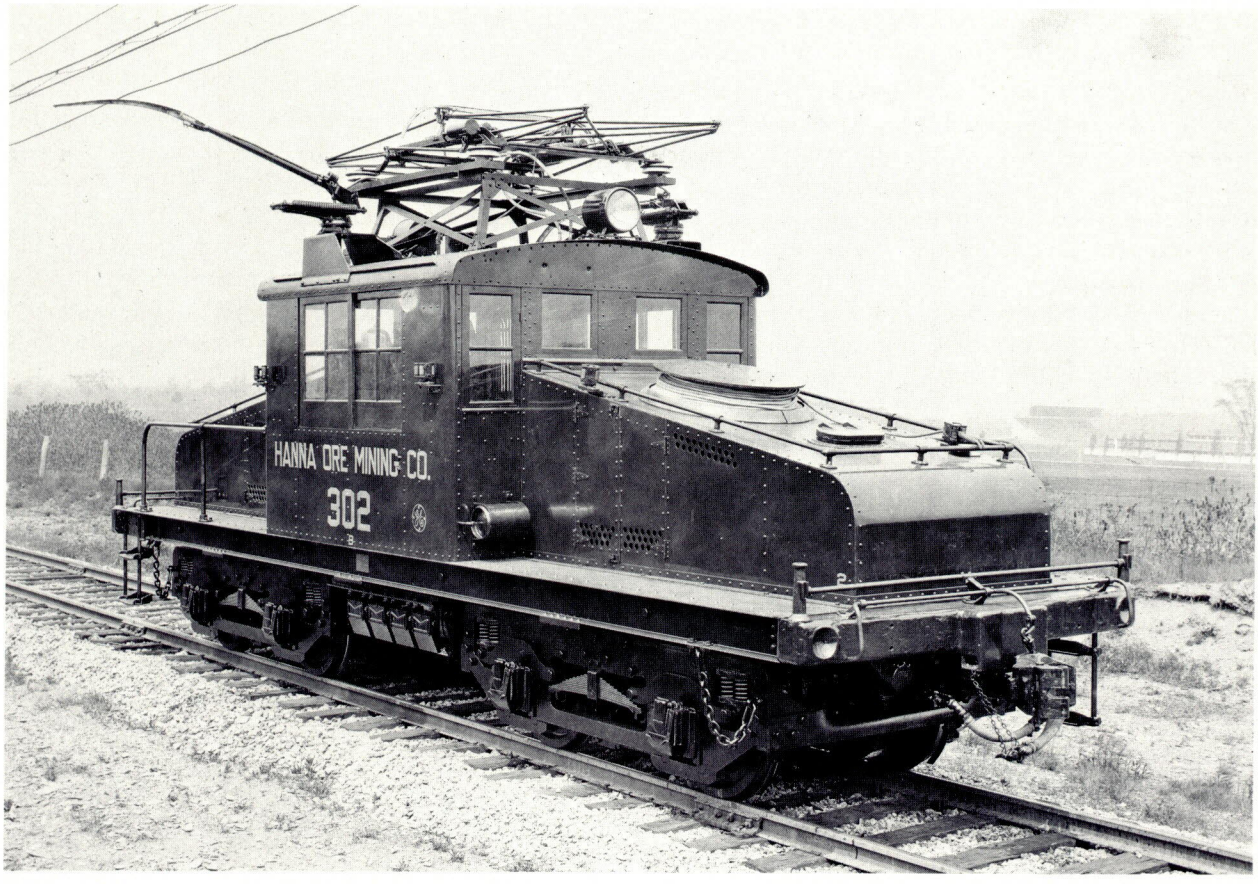
HANNA ORE MINING CO. – Buhl and Keewatin, Minn.

INTER-STATE IRON CO. – Calumet, Minn.

MESABA-CLIFFS MINING CO. – Marble, Minn.

OLIVER IRON MINING CO. – Virginia and Hibbing, Minn.

These four companies operated electric railroads in connection with iron ore mining operations. All of the mines involved were of the open pit type so the railroad operations were essentially similar. Stripping tracks were first laid to facilitate removal of the topsoil and overburden when opening or expanding a pit. Dump tracks were constructed to the site(s) where unsuitable materials were deposited. Approach tracks from the main line to the floor of the pit were built next, and then the connecting temporary loading tracks in the pit itself. As the pit was worked, the loading tracks were constantly being shifted and relocated. Iron ore was loaded into air-operated side-dump cars by steam shovels and hauled to washing/screening plants. From there the ore was hauled to beneficiating or concentrating plants if the quality of the ore required this further processing. The ore was then hauled by steam railroad from either the screening plant or beneficiating plant to the docks on Lake Superior for loading into boats for transporting to the steel mills. For ease in loading the side-dump cars with power shovels, the trolley wire was offset to one side of the track so the electric locomotives were equipped with side-arm power collectors. The "main line" trackage was usually constructed with trolley wire over the center line of the track so the locomotives were also equipped with pantographs. Since many of the dump, stripping, and loading tracks



Facing Page
Hanna Ore Mining Co. operations at the Wabigon Mine, loading side-dump cars with iron ore from the open pit mine. This illustrates why offset overhead wire was necessary.

This Page
Hanna Ore Mining Co. locomotive 302 in August, 1924, at the Wabigon Mine, Buhl. Current collection devices included sidearm trolley, pantograph, and reel-mounted cable. (Both photographs Wayne C. Olsen collection)

were temporary, they were not often electrified. The locomotives were equipped with a reel of power cable mounted on the hoods; at the end of the trolley wire the overhead line pole was fitted with a special switch and a hook connected to the power source. Each locomotive cable had a ring fastened to the end; the cable was wrapped several times around the pole and the ring slipped over the hook. The power was turned on and the locomotive could move at will on the non-electrified trackage, the reel automatically un-reeling or reeling cable as needed.

The first large off-highway dump trucks were acquired by these companies in 1939-1940; they took over the hauling of the iron ore from the pit to the washing screening plants resulting in the removal of trackage in the pit itself. This drastically reduced the track mileage operated and simplified the railroad operations remaining.

It has been rather difficult to locate historical information on these operations. Destruction of old records and the utilitarian nature of the operations complicate the task. Accordingly we have been forced to make assumptions in many instances. The following paragraphs contain the history of these operations as best could be determined at the time of publication.

HANNA ORE MINING CO.

Wabigon Mine, Buhl, Minnesota

This mine was first opened in 1924. It was operated by the Hanna company until 1930 when the mine was closed. An electric railroad was constructed during 1924. Three electric locomotives (301-303) were purchased from the General Electric Co. and received in August, 1924. Each locomotive was equipped with two side-arm collectors and one pantograph. Air-operated side dump cars, usually five cars per train, (numbered in the 200 series) were used. A map of the railroad has not been located so the extent of electrification cannot be determined. The location of the mine was just north of Buhl. Upon closing of the mine in 1930 the three locomotives and most of the other railroad equipment was transferred to the Mesabi Chief Mine at Keewatin.

The mine was re-opened in 1941 and worked from 1941 through 1948; stockpile shipments were made from 1949 through 1952. Apparently this operation was handled by conventional railroad equipment.

Mesabi Chief Mine, Keewatin, Minn.

This mine was first opened in 1913 and operated for only a short time during 1913. In 1928 the mine was

re-opened and large-scale mining operations begun. The electric railroad was completed in 1928; in addition ot the pit trackage, a "main line" ran from the pit to the beneficiating plant, a distance of approximately 1¾ miles, located on the Great Northern Ry. Some of the rail used in construction of the line came from the recently abandoned Mesaba Ry.

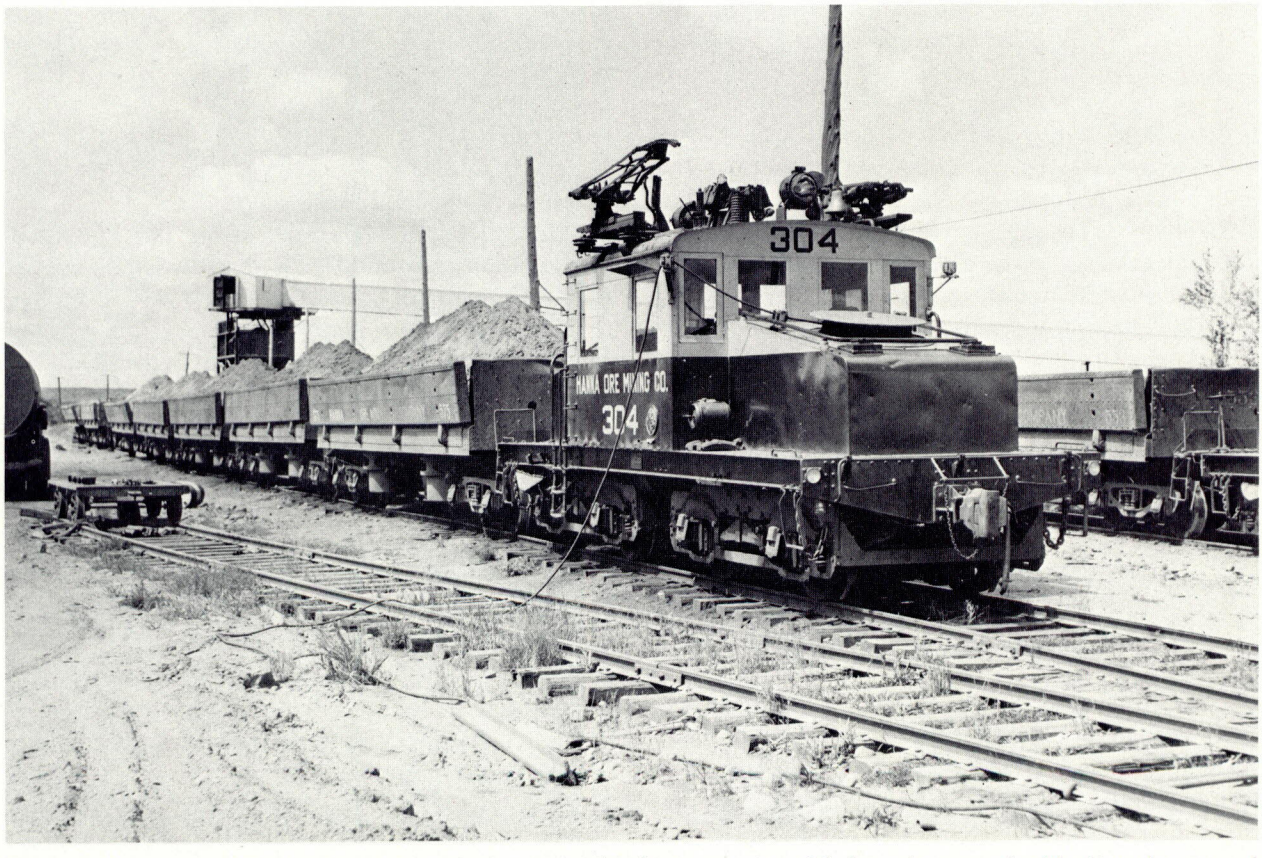
Four electric locomotives were ordered from the General Electric Co. in July, 1928, and delivered in September: 304-307, builder's shop numbers 10603-10606 respectively; class B-B-120/120 4HM 833B-600; weight 60 tons; cost FOB factory was $25,000 each. Each was equipped with two side-arm current collectors. All trolley wire was offset to eliminate the use of pantographs. Twenty-two Differential Steel Co. air-operated side dump cars (numbered in the 500 series) of 30 cubic yard capacity were purchased.

Alternating Current was purchased and converted to 600 volts Direct Current by means of step-down transformers and a motor-generator set.

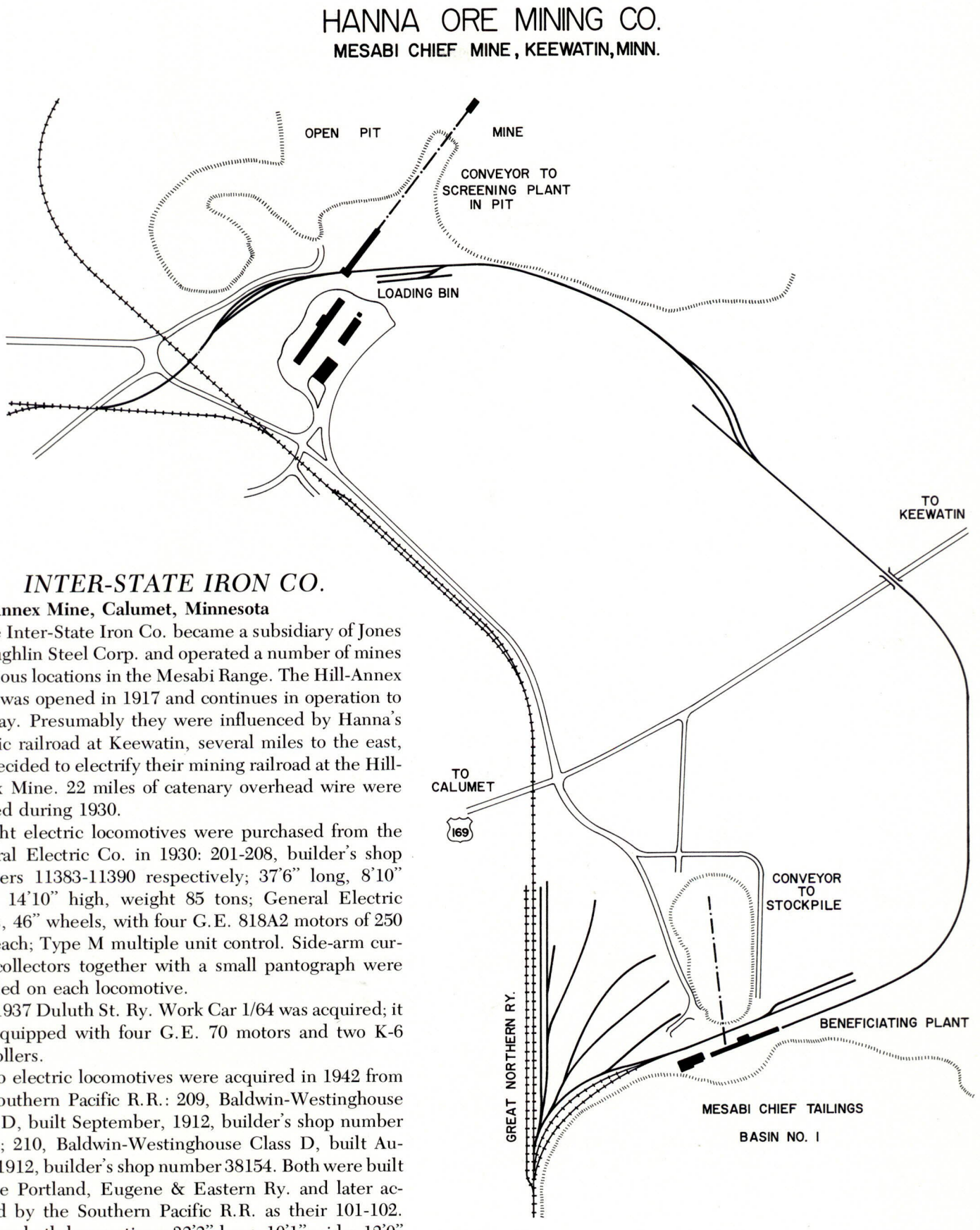
When the first off-highway dump trucks were acquired in 1939-1940 (Hanna purchased Euclid trucks), a washing/screening plant was built in the pit; trucks hauled the ore from the loading shovel to this plant. The processed ore was moved by conveyor belt to loading bins at the pit edge and then loaded into dump cars for the rail haul to the beneficiation plant. Two trains were operated at one time, one loading and the other unloading. Each train consisted of one locomotive and five dump cars with a total capacity of 300 tons of ore. A passing track was located about halfway between the pit and the beneficiation plant.

Apparently the electric locomotives transferred from the Wabigon Mine were eventually sold to the Mesaba-Cliffs Mining Co. at Marble, Minnesota.

The Mesabi Chief Mine was closed at the end of the 1968 ore mining season. The electric railroad was dismantled during November and December, 1968. Sixteen of the side-dump cars were sold to the Mesaba-Cliffs Mining Co. One of the electric locomotives was donated to the Museum of Mining at Chisholm, Minnesota, and 307 to the Lake Superior Museum of Transportation and Industry, Duluth.



Hanna Ore Mining Co. 304 at the Mesabi Chief Mine loading bins operating with the reel-mounted cable. Note the covered belt conveyor running from the mine floor to the loading bins. (Wayne C. Olsen)



INTER-STATE IRON CO.

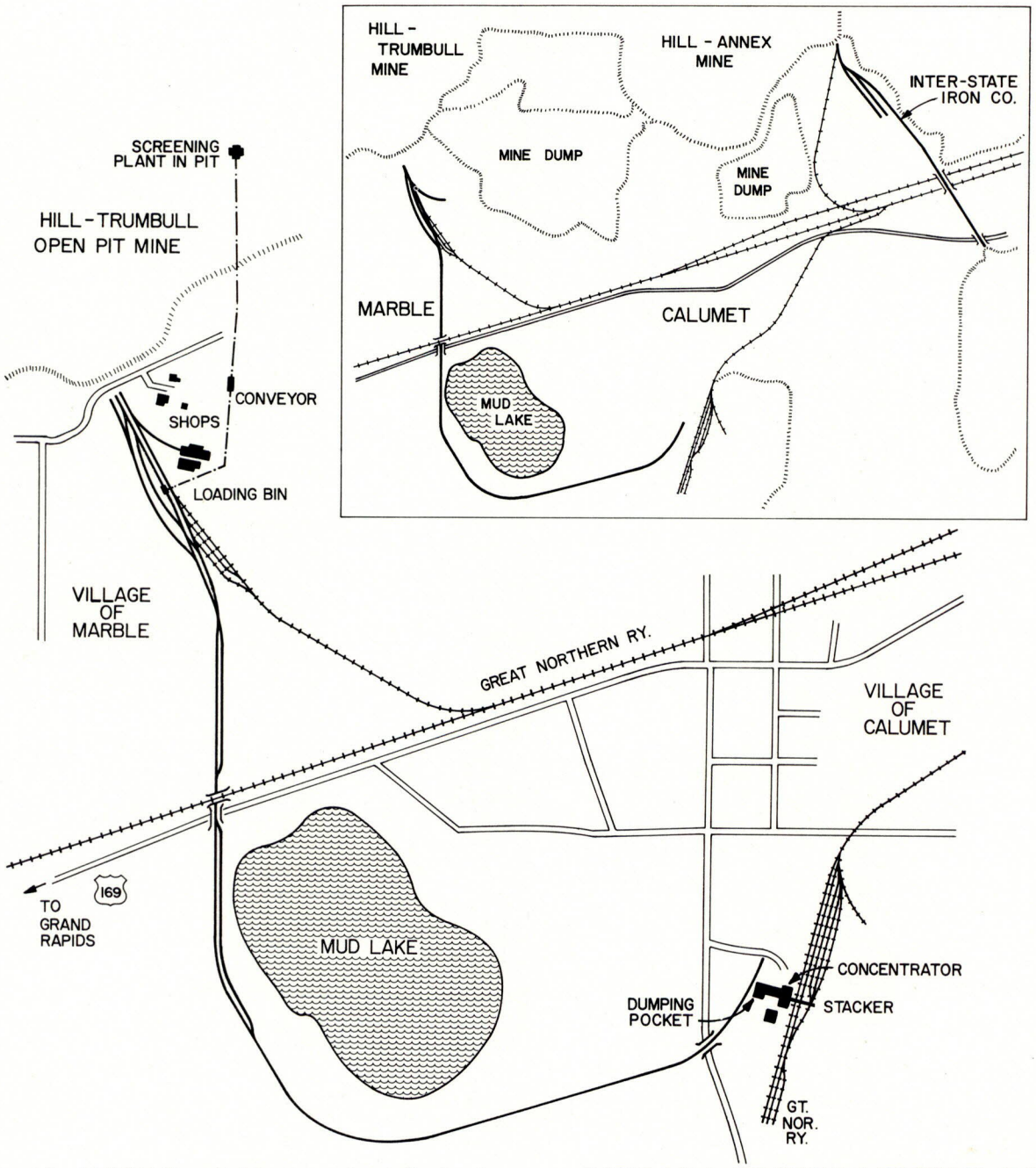
Hill-Annex Mine, Calumet, Minnesota

The Inter-State Iron Co. became a subsidiary of Jones & Laughlin Steel Corp. and operated a number of mines at various locations in the Mesabi Range. The Hill-Annex Mine was opened in 1917 and continues in operation to this day. Presumably they were influenced by Hanna's electric railroad at Keewatin, several miles to the east, and decided to electrify their mining railroad at the Hill-Annex Mine. 22 miles of catenary overhead wire were erected during 1930.

Eight electric locomotives were purchased from the General Electric Co. in 1930: 201-208, builder's shop numbers 11383-11390 respectively; 37'6" long, 8'10" wide, 14'10" high, weight 85 tons; General Electric trucks, 46" wheels, with four G.E. 818A2 motors of 250 h.p. each; Type M multiple unit control. Side-arm current collectors together with a small pantograph were installed on each locomotive.

In 1937 Duluth St. Ry. Work Car 1/64 was acquired; it was equipped with four G.E. 70 motors and two K-6 controllers.

Two electric locomotives were acquired in 1942 from the Southern Pacific R.R.: 209, Baldwin-Westinghouse Class D, built September, 1912, builder's shop number 38298; 210, Baldwin-Westinghouse Class D, built August, 1912, builder's shop number 38154. Both were built for the Portland, Eugene & Eastern Ry. and later acquired by the Southern Pacific R.R. as their 101-102. Data on both locomotives: 32'2" long, 10'1" wide, 12'0"



high, weight 125,500 lbs.; Baldwin trucks, 36" wheels, with four Westinghouse 308D3 motors of 240 h.p. each; Westinghouse HL control.

In 1944 locomotives 209 and 210 were sold to the Waterloo, Cedar Falls & Northern Ry. (Iowa) as their 187 and 186 respectively. In 1947 locomotives 207 and 208 were sold to the same company which retained the original numbers.

Apparently the electrification was discontinued in 1955. On December 31, 1955, locomotives 201-203 were photographed in Superior, Wisconsin, in transit to an unknown destination. Locomotives 204-206 were sold to the Mesaba-Cliffs Mining Co. at Marble, Minnesota.

MESABA-CLIFFS MINING CO.

Hill-Trumbull Mine, Marble, Minnesota

The Mesaba-Cliffs Mining Co. is owned by the Cleveland-Cliffs Iron Company. The Hill Mine was operated by the Oliver Iron Mining Co. from 1910 to 1916; the Mesaba-Cliffs Mining Co. began operations there in 1920. The Trumbull Mine was opened by the Mesaba-Cliffs Mining Co. in 1920; either at this time or at some later date the operations of the two mines were combined as the Hill-Trumbull Mine. This operation continues today.

Apparently this company was influenced by both the

Hanna Ore Mining Co. and Inter-State Iron Co.'s electric railroad operations. They are supposed to have purchased three electric locomotives from Hanna Ore Mining Co. that were used in the Wabigon Mine at Buhl (301-303 built by General Electric Co. in 1924). The date electric operation began is unknown. Alternating Current was purchased and converted to 600 volts D.C. by means of a motor-generator set.

When the Inter-State Iron Co. discontinued electrification in 1955, locomotives 301-303 were replaced by the acquisition of 204-206 from Inter-State. The latter locomotives were used until the end of operations.

Twenty air-operated side-dump cars, of 30 cubic yard capacity each, built by the Western Wheel & Scraper Co., were owned. Trains consisted of from five to seven dump cars each for a total capacity of 300 to 420 tons per train. In 1968 sixteen dump cars were acquired from the Hanna Ore Mining Co.'s recently abandoned electric railroad at the Mesabi Chief Mine; during 1969 twelve of Mesaba-Cliffs Mining Co.'s original dump cars were scrapped.

The electric railroad continued in operation until 1972, running from the pit to the concentrator plant, a distance of about 1¾ miles. Side-arm current collectors together with the small pantograph were used. This was the last conventional electric railway to operate in Minnesota.

Above: Cleveland-Cliffs Iron Co. 205 (former Inter-State Iron Co. 205) at the loading area operating with side-arm trolley.

Below: Cleveland-Cliffs Iron Co. 206 pushing a loaded train to the concentrator drawing current through the roof-mounted slide collector. The triple level crossing involved highway 169 and the Great Northern Ry.

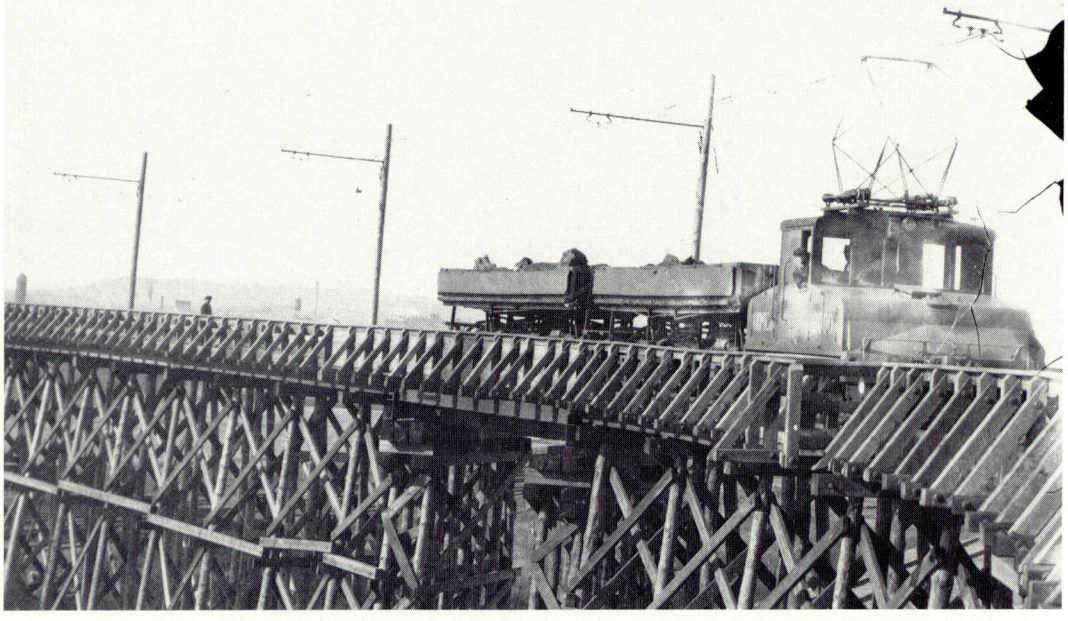
(Both photographs Wayne C. Olsen)

OLIVER IRON MINING CO. Virginia and Hibbing, Minnesota

This company had at least two very short electric railroads (4'8½" gauge) about which little is known.

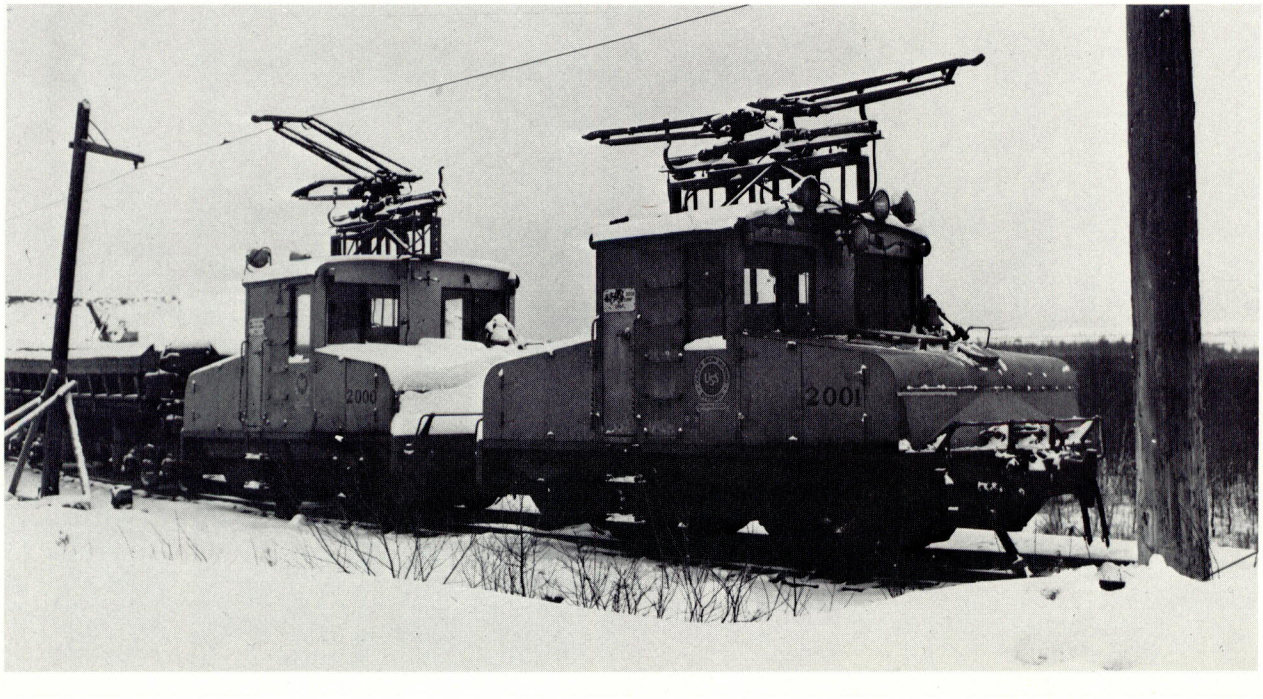
A crushing plant was built in 1924 near the Rainy Junction Yard of the Duluth, Missabe & Northern Ry., south of Virginia. This was called the Virginia Crusher and is now known as the Rouchleau Crusher. An electric haulage railroad was built simultaneously for the purpose of moving lean ore and reject rock to a nearby mine dump. A small, four-wheel, 35 ton, pantograph-equipped steeple cab electric locomotive (2000) and two air-operated side-dump cars were operated over about ½ mile of track. Because of operational changes in the crushing operations the electric railroad was little used and the locomotive eventually transferred to the Hull-Rust Crusher at Hibbing.

The Hull-Rust Crusher (also known as the Kerr Crusher) at Hibbing had a similar electric railroad moving reject rock from the lower side of the crushing plant about ¼ mile to the south. Electric locomotive 2001 (identical to 2000) was operated at this location and was eventually joined by 2000. Photographs show that both were equipped with side-arm trolleys. The Hull-Rust operation was closed in the late 1960's, the crushing plant dismantled, and the two locomotives presumably scrapped.



Above: Oliver Iron Mining Co. 2000 and train on the rock trestle from the Virginia Crusher in July, 1924. (Frank A. King collection)

Below: Oliver Iron Mining Co. 2000 and 2001 at the Hull-Rust Crusher, Hibbing, in the late 1960's. Side-arm trolleys have replaced the pantograph. Note the portable overhead wire support pole at the left; these were used extensively by all the mining companies for tracks on the pit floor which were constantly being relocated. (Richard Stoner)



American Railway Journal

August 16, 1894

Engineering News

The smallest electric railway in the world is said to be located at Dellwood, Minn. It is about 550 ft. long and runs between the railway station and the summer home of a St. Paul banker. It is equipped with one motor car and two trailers, each 5 ft. long by 2 ft. wide, running on a 14" gauge track. The third-rail system is used instead of a trolley. At the end of the line is a powerhouse and a small machine shop, operated by a 2 h.p. petroleum engine belted to a 2 h.p. compound-wound generator. The road is practically straight, with two gradients in it of 10% and 16%. Up these the motor can easily carry four adults and two children.

Note: Dellwood is located on the northeast shore of White Bear Lake, near St. Paul; the Northern Pacific Ry. closely parallels the lake shore in this area.

GREAT NORTHERN RY. SUPERIOR, WISCONSIN

Great Northern Ry.'s Allouez Yard in Superior handled most of GN's iron ore traffic. New shops, engine house and terminal had been constructed at Bardon Ave., about 1.25 miles from the nearest public transportation. A switch engine with two cars made regular runs to and from the terminal to provide transportation for the train crews. GN decided to build a streetcar line from the D.S. S. & A. Ry. crossing to the Allouez Yard enginehouse, a distance of 1.76 miles. On April 24, 1913, it was announced that the line was to be completed in 2 or 3 weeks. GN was to furnish its own power. Twin City Rapid Transit Co.'s last single truck, passenger motor car #448, was sold to the GN Ry. in April, 1913, for use on this line. A waiting station was built at the "city" end of the line but it was still some distance to the end of DSR's "Allouez" streetcar line. This operation, using the lone single truck passenger car, continued until 1927, when the track was removed and a gasoline-engine operated car was run on the regular yard tracks.

C. P. JONES, Pres. & Treas. A. B. ROBBINS, Vice Pres. GEO. P. STEARNS, Secretary. W. B. MANIER, Supt.

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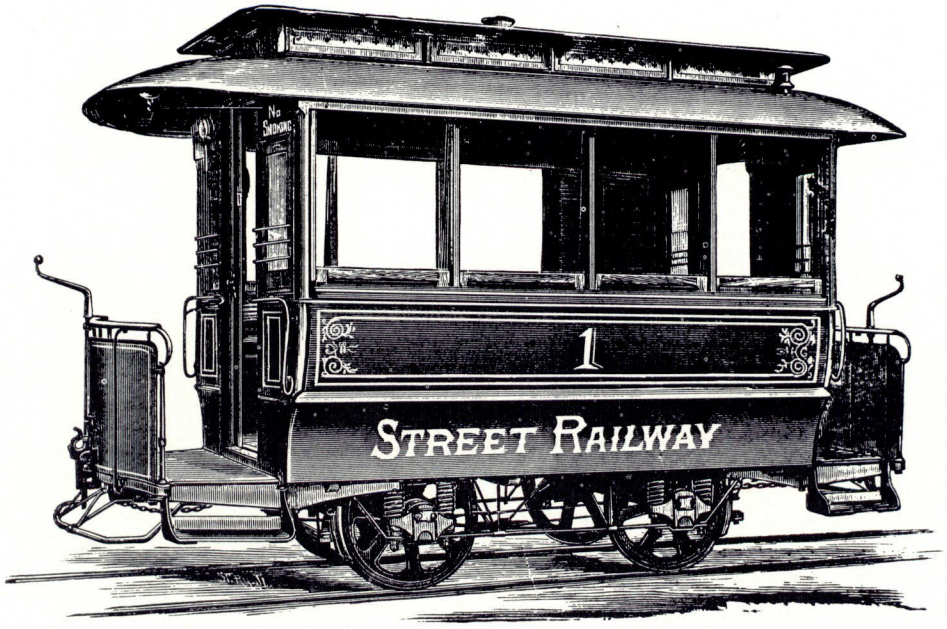

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SECTION VII
CAR BUILDING COMPANIES

1. NORTHERN CAR COMPANY

Robbinsdale, Minn.

The firm of Robinson & Moan was organized about 1885 in Waterloo, Iowa, as a builder of horsecars. Some time later, a relocation of their manufacturing facilities to Robbinsdale, Minnesota, was publicized; the new plant, located near 42nd Ave. N. and Hubbard Ave., was to be completed by November 1, 1889. A re-organization in 1890 resulted in the change of name to Northern Car Company; officers elected were: C.P. Jones (President), J.M. Moan (Vice President) and C.E. Mabie (Secretary-Treasurer). During 1891 the officers were: C.P. Jones (President & Treasurer), A.B. Robbins (Vice President) (the founder of Robbinsdale), George P. Stearns (Secretary), and W.B. Manier (Superintendent). Another re-organization in November, 1891, resulted in a change of officers to: C.P. Jones (President), W.E. Steele (Vice President), D.M. Gilmore (Treasurer & General Manager), and G.P. Stearns (Secretary).

The completed plant consisted of two two-story buildings, one 60' x 300' and the other 60' x 200', with a capacity variously reported as 10 cars per week or 45 cars per month. We have been unable to learn when actual production began at the new plant. However a search of trade journals of the period has resulted in the compilation of a listing, probably incomplete, of the street railways for which cars were built from 1890 through 1892.

On May 7, 1892, a fire destroyed both buildings along with many finished and partly-finished cars, including some for St. Paul, Minnesota, and Rockford, Illinois. Total loss was estimated at $60,000. Plans were subsequently announced for construction of a new plant north of the Soo Line Ry. Shoreham shops in the Sandy Lake area of Minneapolis. Apparently the carbuilding business had not been too lucrative and financing was difficult to secure for these plans never materialized and the company went out of business.

Incomplete Listing of Street Railways for which Northern Car Company built streetcars 1890-1892

Georgia
- Augusta

Illinois
- Elgin
- Galesburg
- Rockford

Iowa
- Des Moines
- Sioux City

Michigan
- Grand Rapids

Minnesota
- Duluth
- Minneapolis
- St. Paul
- Winona

Montana
- Anaconda
- Great Falls
- Tower City

Nebraska
- Lincoln

Ohio
- Akron
- Canton

Oregon
- Portland

South Dakota
- Sioux Falls

Washington
- Bellingham Bay
- Seattle
- Tacoma

Wisconsin
- Milwaukee
- Superior

2. LIGHT WEIGHT NOISELESS ELECTRIC STREET CAR CO.

St. Paul, Minnesota

The firm of A.L. Drum & Company, Consulting and Constructing Engineers, of Chicago, Illinois, had been engaged by Twin City Rapid Transit Co. from 1911 onward to conduct valuation and fare rate studies required by city ordinances and state laws. Apparently the consultants were interested in TCRT's experiments in building light weight streetcars under the guidance and inspiration of its Master Mechanic, Walter J. Smith. The completion of the light weight multiple unit two-car train, 2002-2003, in November, 1921, came at the time when the consulting firm was engaged in valuation studies necessitated by passage of the Brooks-Coleman Law by the Minnesota Legislature. Mr. Drum became convinced that a ready market could be found for such cars throughout the country. However the majority of TCRT management was wary about over-investment in this radical car, so several of its most avid backers incorporated into the Light Weight Noiseless Electric Street Car Company with offices located at the Drum Company's headquarters in Chicago. The officers were: A.L. Drum (President), Chicago; E.M. Maddox (Vice President), Chicago; R.C. Choate (Vice President), Minneapolis; and A.J. Chaleen (Master Mechanic), Minneapolis (formerly an employee of TCRT).

A contract was entered into with TCRT's wholly owned subsidiary, Transit Supply Co., to build the cars in its Snelling Shops in St. Paul, invoicing LWNESCCo. for the actual cost plus 10% profit.

Their earliest advertisments stated they would build cars to designs furnished by the customer, or they would supply two types of cars of their own design: Car A, designed for one or two man operation as single units, or for three-man operation as a two-car train (This design was identical to TCRT 2002-2003.); or Car B, designed for one or two-man operation as a single unit: 37'6" overall length, weight 22,000 to 24,000 pounds, seating 43, providing 10% faster schedule speed with 40% power savings (The first drawing was dated February 28, 1923 and revised June 12, 1924.). The light weight truck used in these two designs was always advertised as the W.J. Smith #12 truck although it was identical to the Twin City #12 truck which was designed by Mr. Smith.

The first contract was received in 1924 consisting of an order for 50 carbodies to be built to the design and specifications of the Chicago Surface Lines: 20 cars for the Chicago City Ry. Co. (6219-6238) and 30 cars for the Chicago Rys. Co. (3232-3261). Both groups were identical in appearance, designed for operation by one-man, two-man, or two-car train units. Other details were: 48'11" long, 8'4" wide, weight 41,700 pounds, two 60 h.p. motors, and Brill 39E2 maximum traction trucks. This order was completed in the fall of 1924.

A Minneapolis office was established for LWNESCCo. in 1924 at 28 South 10th St. This was moved in 1925 to 403 Essex Building.

A carhouse fire in Grand Rapids, Michigan, on July 18, 1924, destroyed 40 of their old cars; as a result the Grand Rapids Ry. began planning for special lightweight cars to re-equip and modernize their street railway system. Three carbuilders who submitted designs and bids were each authorized to build one sample car: G.C. Kuhlman Car Co. (named the "Ohio"); St. Louis Car Co. (named the "St. Louis"); and LWNESCCo (named the "Minnesota") (later numbered 375).

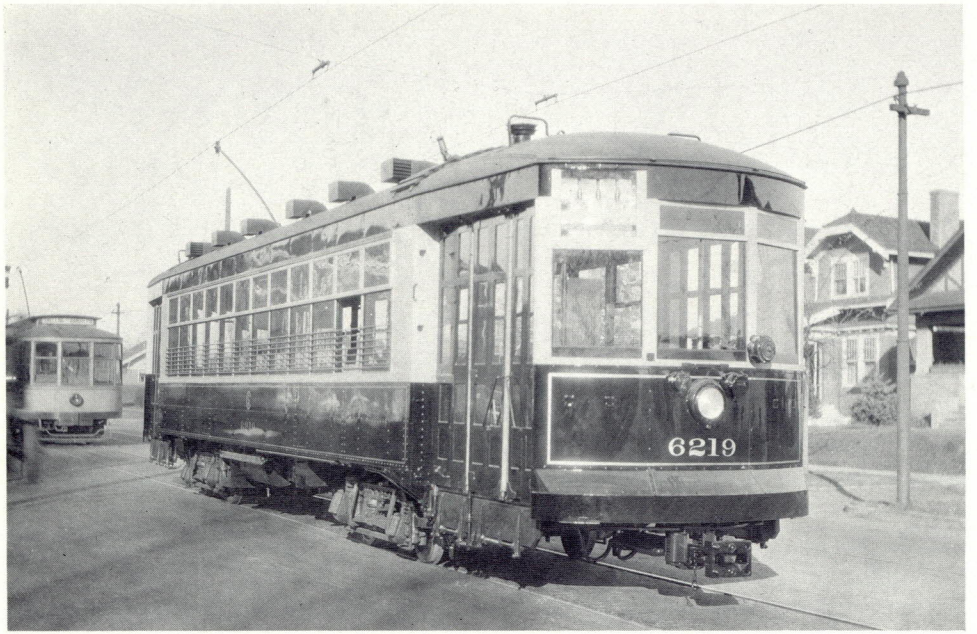
The order was received for this car, a Car B design (36'0" long), on September 23, 1924 and construction started on October 20, 1924. It was completed in March, 1925, and shipped to Grand Rapids. After five months' service there, deluxe individual bucket seats, rubber tile floor covering, and exterior skirting were installed. We have not located information as to performance evaluations on the three sample cars, but we do know that St. Louis Car Co. received the order for the balance of 27 cars in 1926.

Two additional car orders were processed by the Snelling Shops simultaneously with the Grand Rapids car but they were of a slightly different design: Duluth St. Ry., 5 cars, 301-305, for Superior, Wisc.; and Twin City Rapid Transit Co., 4 cars, 1-4, for Stillwater, Minn. These cars started through the shops on October 20, 1924 and were completed in April, 1925.

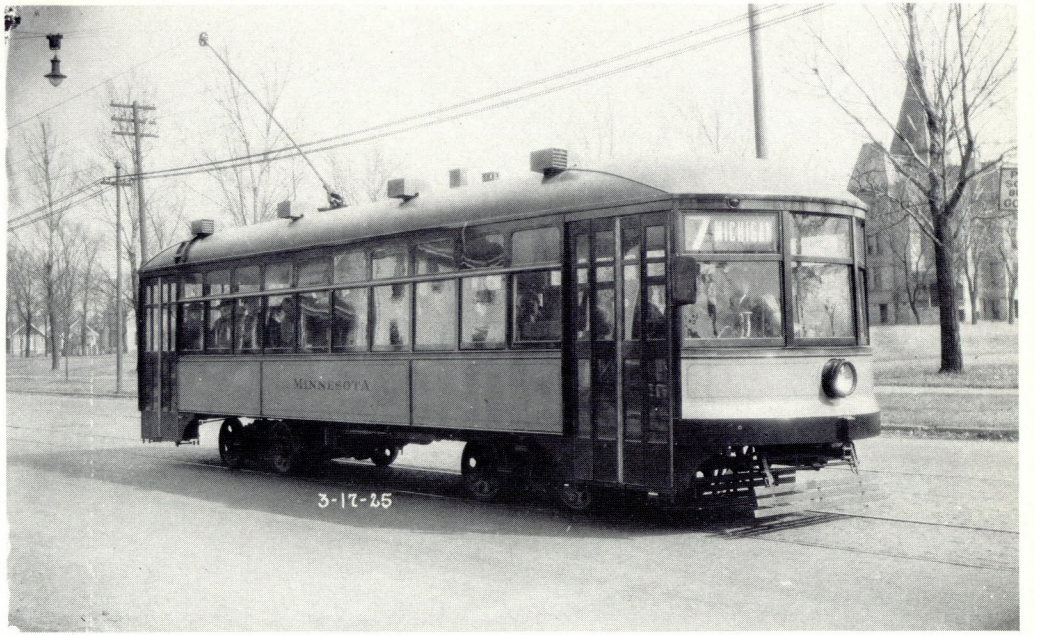
Many other companies showed interest in the cars and many quotations were issued. We know that Lancaster, Pa.; Johnstown, Pa.; and Brooklyn, N.Y., received price quotations. Presumably the established commercial car building firms, geared for high production of standardized cars, were more competitive in their prices, for no additional orders were received during 1925 or early 1926.

Duluth St. Ry. encountered some problems with their cars and we have been fortunate to locate correspondence which details the difficulties.

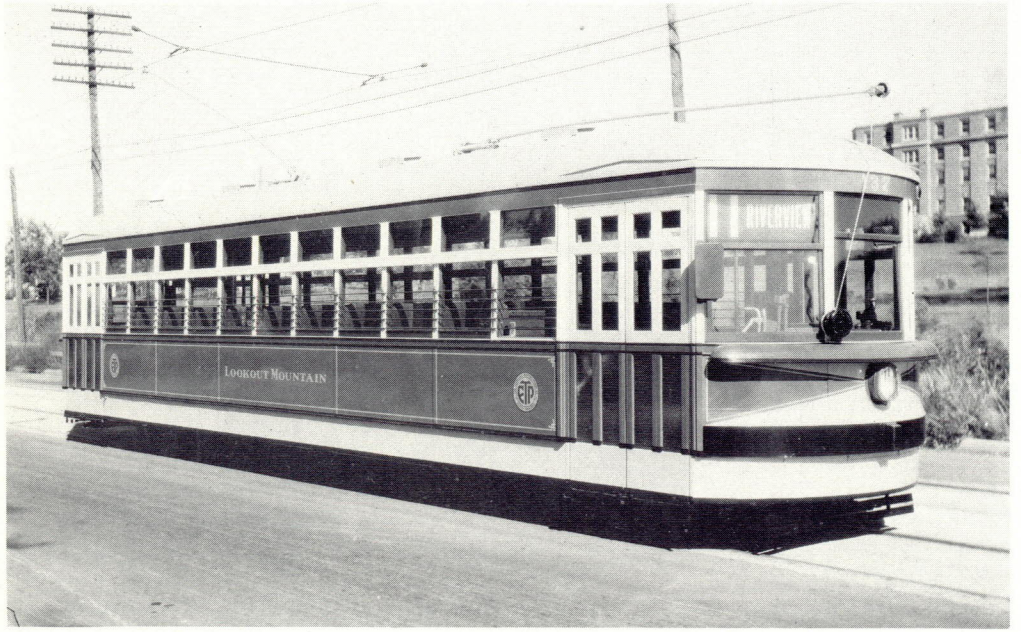
Since the cars were built light, to accelerate and brake quickly in order to compete with bus and automobile traffic, they were more refined and complex; DSR said they need closer inspection, more constant attention, and more skill in maintenance. Motormen liked to start up quickly and set the brakes at the last minute when stopping; this led to: (1) excessive flange wear (normal wear was about two years compared to three months on the



Chicago City Ry. 6219 during trial runs on Snelling Ave., St. Paul. (TCRT)

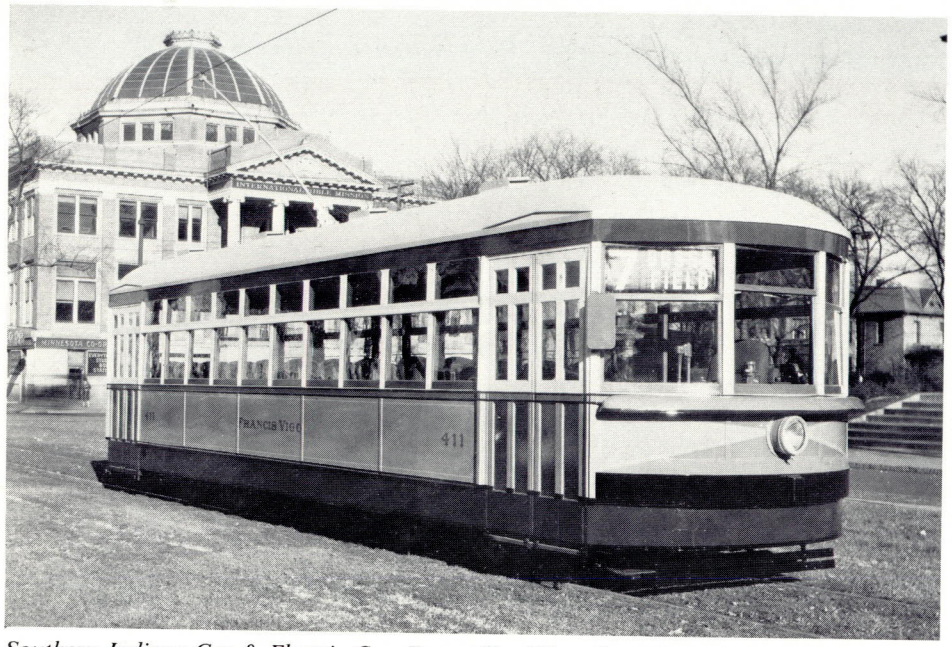


Grand Rapids Ry. 375 "Minnesota" on a demonstration run March 17, 1925. (TCRT)



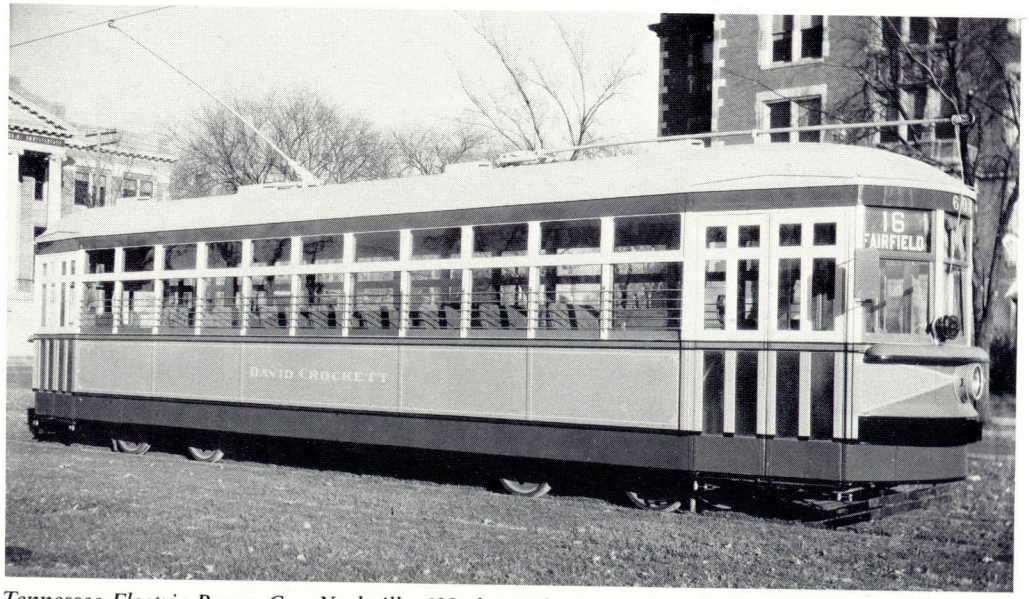
Tennessee Electric Power Co., Chattanooga, 137 on Como Ave., St. Paul. (TCRT)

Interior of Chattanooga car 131. (TCRT)



Southern Indiana Gas & Electric Co., Evansville, 411 at the main campus of the University of Minnesota. (TCRT)

Interior of Evansville car 413 looking toward the rear. Only the single end cars had bucket seats, the double end cars being furnished identically to the Chattanooga cars. (TCRT)



Tennessee Electric Power Co., Nashville, 608 also at the main campus of the University of Minnesota. (TCRT)

Interior of Nashville car 604. Note the inward cant of the steps and doors, a feature peculiar to the Nashville cars. (TCRT)

light weight cars); and (2) excessive wheel wear due to flat wheels caused by skidding when stopping (In one month and nine days DSR had to change 18 pair of wheels, regrinding 12 pair and scrapping 6 pair). The motor clearance was only 2" to 3" above the street; in winter thaws water was often 3" to 4" deep on the tracks so that motors were grounding and fields burning out. The cars were not good on slippery rail or in snow storms. If ruts were formed in the snow and ice adjacent to the flangeways, the brake drums would rub on the ridges. Brake drums wore out rapidly and many had to be discarded due to cracked spokes or blow holes in the face of the drum. DSR further reported that in spite of the carbuilders name the cars *were noisy* due to squealing brakes, excessive gear noise, and rattling window sash; patrons were subjecting the company to ridicule with their comments on the builder's nameplate displayed in cars. (TCRT advised DSR's mechanic that the problems could be cured by sinking in the rivets on the brake bands, watching the bearing wear more closely (due to the small amount of clearance at the bottom of the gear teeth, if the bearings got worn the gears got noisy), and adjusting window sash and springs, resetting the glass in the process.) Finally, the masonite side and end panels were delicate, very easily damaged in collisions with automobiles.

LWNESCCo. was successful in obtaining only two additional car orders. These were for 33 cars of a modified Car B design which were constructed in the Snelling Shops during August through October, 1926. 20 cars for the Tennessee Electric Power Company; 10 cars for Chattanooga, 131-140, double end, 40'3½" long, 8'6" wide, weighing 29,000 pounds, and seating 44 persons; and 10 cars for Nashville, 600-609, double end, weighing 28,800 pounds. 13 cars for the Southern Indiana Gas & Electric Co., Evansville, Indiana, 37'6" long, 8'6" wide, seating 46 persons: 401-407 were double end, weighing 28,300 pounds, and 408-413 were single end, weighing 26,750 pounds. All 33 cars were individually named, and had Twin City #12 trucks with four G.E. 258F motors.

LWNESCCo. was still in existence in 1927 for supplying repair parts. Twin City Rapid Transit Co. built an additional order of light weight noiseless cars for itself: 25 cars, 2006-2030, completed during December, 1927, and January, 1928. TCRT's budget for these cars was $155,000 total, or $6,200 each. When Duluth St. Ry. officials learned this, they were rather disgusted because they had paid $11,940 each for their 5 cars exclusive of the 10% profit to Transit Supply Co.

As parts were readily available from TCRT, there was no real reason for the continued existence of LWNESCCo. and the company subsequently went out of business.

Head-on views of a Chattanooga car, left, and a Nashville car, right, illustrating the platform design variations. We do know the color schemes of the Chattanooga cars: common to all cars were gray roofs, black and cream bumpers and trim, and gold lettering and striping. One variation consisted of blue and cream body with cream skirts, and the other variation tan and cream body with maroon skirts. (TCRT)

Above: The incline railway at 61st Ave. W. and Grand Ave., West Duluth, as it appeared in the 1890's. The trestle in the background carried Grand Ave. over the tracks. The building in the foreground is the depot of the St. Paul & Duluth Ry., located on a trestle which carried the railroad tracks over the incline railway.

SECTION VIII
CABLE AND MONORAIL RAILWAYS

DULUTH BELT LINE RY.

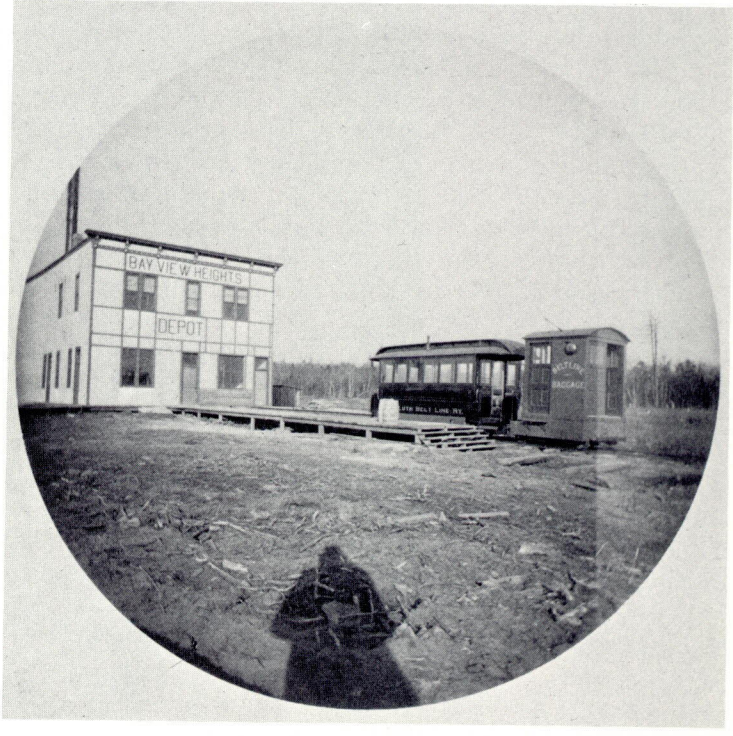
West Duluth, Minn.

The Duluth Incline Railway was incorporated in December, 1888, and began construction of an incline cable railway from West Duluth to Bay View Heights. The company was owned by the Myers Brothers, who were real estate promoters. They proceeded to incorporate the Bay View Land Co. in September, 1889, and acquire 1250 acres of land in Bay View Heights which was platted into residential lots. The incline railway was to provide access to the development as had been already successfully done in Pittsburgh, Cincinnati, Kansas City and San Francisco where, as promotional literature claimed, the best residences were to be found on surrounding hillsides and bluffs. It was reported on September 8, 1889, that the 1.5 miles of single track on level ground had been completed and that work on the incline portion was under construction. The incline was 7,300 ft. long with a rise of 600 ft.; the steepest grade was 16%. A steam powerhouse was built at the top of the incline.

Promotional literature states that upon completion of the incline railway in October, 1889, the running of regular trains from West Duluth to Bay View Heights was begun. In January, 1890, the company was re-organized as the Duluth Belt Line Ry. The first operation under this name began July 8, 1890, with 24 minutes running time

Below: The depot and powerhouse at the top of the incline railway at Bay View Heights in the 1890's. The baggage car and passenger car are stopped at the loading platform.

(Both photographs Wayne C. Olsen collection)



required for the one way trip. Stations were located at (in descending order): Bay View Heights, Pleasant View, Incline (61st Ave. W. and Grand Ave.), Central Ave. (at Polk St.), and Iron Bay or Marinette Works. Connections were made at Incline Station with passenger trains of the St. Paul & Duluth R.R. Passenger service was offered at a 5 cents fare. Freight service was also operated, consisting mostly of timber to and lumber from the saw-mills on Grassy Point. No information is available on the original equipment operated; the photographs illustrating this section provide the only clues.

In June, 1902, the company equipped its cars with telephones installed by the Zenith Telephone Co. An electric gong service had previously been used for conductors to signal the powerhouse to start and stop the cars. As the two cars operated were permanently attached to a single cable, one of the conductors would not know the cause of stopping or when the car would start. The new telephone system allowed the conductors to talk with each other as well as with the powerhouse engineer.

On April 13, 1904, it was reported that cars ran for the first time in nearly two months. The line had been closed for a good part of the winter due to ice covering the tracks 10" to 12" deep along the Keene Creek bottoms, due to the creek being blocked with ice jams. On May 8th it was still reported as being out of operation, the result of formation of ice in the cable slots.

On June 30, 1906, it was announced that two 16 ft. passenger cars had been purchased and would be attached to the cables at once, replacing the old bobtail cars which had been in use for years. These two cars were formerly 25 and 28 of the Duluth St. Ry.

On August 21, 1909, it was announced that the trackage east of 61st Ave. W. and Grand Ave. would be abandoned and a terminal built at 61st Ave. and Grand where connections would be made with Duluth St. Ry. streetcars. The abandoned section eliminated several troublesome curves and considerable expensive trestle work; in addition the roadbed was becoming dilapidated and sinking into the mud. The timber hauling aspects of the company's business had considerably diminished resulting in unprofitable operations over this segment. The remaining line consisted of approximately 1.5 miles of track. Provision was made with the Duluth St. Ry. for the transfer of passengers (there was no physical track connection) and car connections were printed on Duluth St. Ry. timetables. Duluth Belt Line Ry. operated hourly passenger service between 6:00 A.M. and 9:00 P.M. with a few trips added during the P.M. rush hour.

The depot built in 1909 on the Grand Ave. trestle at 61st Ave. W. Terminal sheaves for the cable are located underneath the structure. Former Duluth St. Ry. streetcar 25 stands by the loading platform. Note the electrical contact arm on the car roof for lighting and signaling purposes. (Wayne C. Olsen collection)

In April, 1910, extensive improvements were undertaken consisting of: (1) installing a new cable, (2) repainting and refurnishing the power plant at Bay View Heights, (3) installing a new sheave in the power plant machinery, (4) repainting the cars exteriors and redecorating the interiors, and (5) repairs to the roadbed begun in the fall of 1909 were completed. Materials from the abandoned portion of the line were salvaged and used in repairs and maintenance of the existing portion.

During May, 1915, two additional cars, 39 and 41, were purchased from the Duluth St. Ry. and placed in service.

Operations were shut down for the winter in December, 1916. It is not known whether operations were resumed in the spring of 1917. It was reported on December 9, 1917, that since 1909 the company had abandoned stretches of right-of-way and used the material to repair the rest of the line until the fall of 1917 when the whole property was pulled up and sold as junk.

SOUTH ST. PAUL RAPID TRANSIT CO.

South St. Paul, Minn.

South St. Paul had separated from West St. Paul in 1887 to form a new suburb of St. Paul. Existing public transportation ended far north of the bluff above Concord St. where C.W. Clark and John H. Bryant owned substantial land they were attempting to develop. These promoters felt their objectives could be more easily accomplished if there were a direct, fast transportation route into downtown St. Paul. The Enos Electric Ry. Co., located in New Jersey, had developed and patented a monorail system. Clark and Bryant decided this was the

transit system of the future and the answer to their problem.

Construction began in 1887 at what is now the 700 block of 16th Ave. N. in South St. Paul (supposedly in front of 755 16th Ave. N.) on the monorail overhead structure. From this point the structure curved north onto Bryant Ave. and then down the Bryant Ave. hill ending at Concord St., about ¾ of a mile in length.

In the meantime the company had applied to the St. Paul City Council for a franchise to run the line into the city. The complete proposal called for the line to operate north on Concord St. to a proposed terminus at the St. Paul Union Depot; 10 cars were to be operated over the 8 miles of overhead structure at speeds of up to 70 miles per hour. The St. Paul City Council discussed the matter for several months but finally refused to grant the franchise. Objections to the overhead structure, horses frightened by the noise of the electric powered cars, and insufficient financing were all cited for the refusal. Being optimists, Clark and Bryant decided to go into business anyway. The line was completed from Concord St. and Bryant Ave. to, according to one source, 16th Ave. N. and Thompson Ave., all in South St. Paul.

The inaugural runs were made on May 10, 1888, when two carloads of aldermen, city officials, financiers, and businessmen from Minneapolis and St. Paul were carried over the line to demonstrate the practibility of the monorail system. At the conclusion of the experiment, which worked perfectly, lunch was served followed by brief speeches expressing enthusiasm over the outlook.

But failure was only a matter of time for the monorail that had no place to go. After a short time operations were discontinued. Several years later the overhead structure was dismantled. Clark and Bryant sustained substantial financial losses on the project which took them many years to repay.

SECTION IX
TWO INTERESTING NORTH DAKOTA ELECTRIC RAILWAYS

There were two additional electric railway operations in North Dakota other than the street railways previously described. We thought that a brief history of each should be included as both were interesting operations.

1. VALLEY CITY STREET & INTERURBAN RY.

Valley City, N.D.

Valley City is an important community in the wheat-farming plains area of the state; it is located on the curve of a bend in the Sheyenne River. The city is small (1918 population 4,606 persons) but its geographic situation created a need for the electric railway. The steep bluffs along the river required heavy grades as the Northern Pacific Ry. discovered when it built its original main line (the "low line") around the north side of the city, crossing the river with the assistance of a high fill, thereby eliminating most of the heavy grades. Soo Line Ry. came up the Sheyenne Valley from the northwest; it was necessary to climb out of the valley and running through the city would have precluded that, so the city was bypassed. The Valley City Street & Interurban Ry. was incorporated in June, 1905, by O.A. Beeman for the purpose of transporting passengers, freight, mail and express between the N.P. and Soo Line.

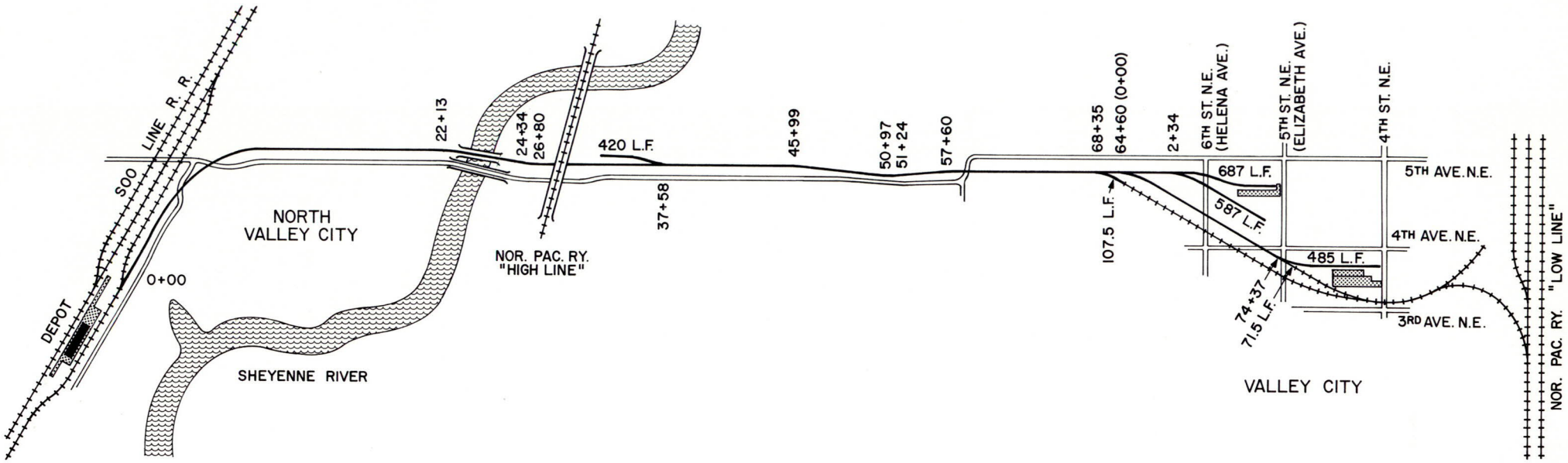
Construction costs were financed entirely by Valley City capital. First main track was 1.75 miles (0.75 miles of span wire construction and 1.00 miles of side bracket construction), sidings 0.25 miles, and total track 2.00 miles, all constructed with 60 lb. T rail. The connection with the Soo Line was named North Valley City, and operations began December 18, 1905. The repair shop and power station were located at the corner of 5th Ave. and 5th St. in Valley City. Power was generated by a steam engine driving an 80 KW generator. Equipment consisted of one passenger-baggage motor car (supposedly acquired second-hand from an interurban electric railway in Michigan) and two open passenger trailers.

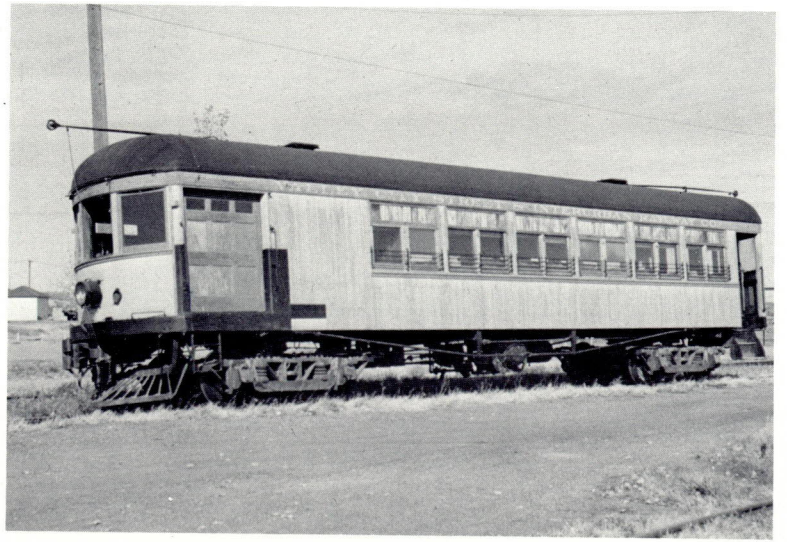
Above: South St. Paul Rapid Transit Co. monorail car ascending the Bryant Ave. hill, westbound.

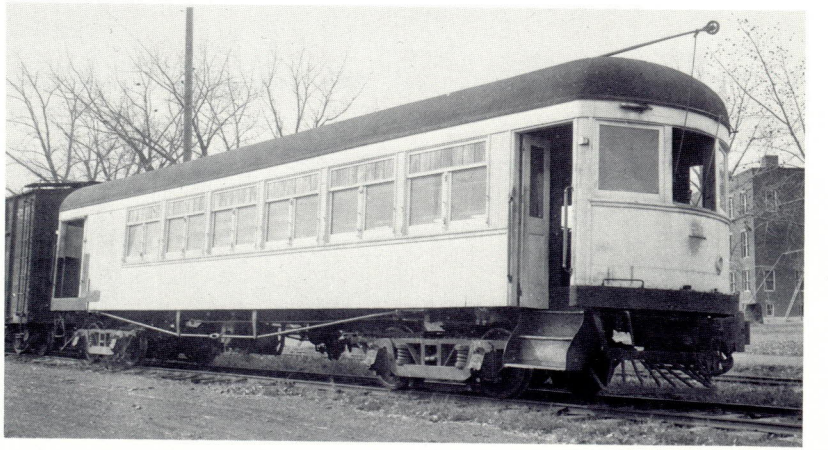
The monorail car at the point where the structure curved from Bryant Ave. onto 16th Ave. N. The structure in the background continues south on 16th Ave. Dimly visible in the background are portions of two additional structures, one continuing south on 16th Ave., and the other perpendicular to it heading west.

(Both photographs Minnesota Historical Society collection)

VALLEY CITY STREET & INTERURBAN RY.
VALLEY CITY, NORTH DAKOTA







Two views of Valley City Street & Interurban Ry.'s car built by McGuire-Cummings Mfg. Co. in 1915. (Robert M. Hanft; Joe Hutchinson collection)

During 1913 the change was made to purchased power using a motor-generator set to produce direct current. In 1915 a passenger-baggage motor car, number 2, was acquired from the McGuire-Cummings Mfg. Co. Electric railway directories of 1918 and 1924 list the company as owning three motor cars.

The passenger fare from Valley City to North Valley City was 25 cents in 1924. A small amount of freight traffic was generated locally, but the majority was bridge traffic between the N.P. and Soo Line. During the 1930's and 1940's the freight traffic was insufficient to afford proper track and equipment maintenance. After the end of World War II the physical condition of the property was reported as poor. In 1948 car 2 was retired, and replaced by snow plow-work motor 105 of the Minneapolis Anoka & Cuyuna Range R.R. which was used as an electric locomotive, passenger service having been discontinued.

The property, in dilapidated condition, was acquired by the Soo Line on June 23, 1953; the interchange traffic consisted of about 1100 carloads annually. The last electric operation took place September 23, 1953; track was re-laid with 90 lb. rail and a new bridge over the Sheyenne River constructed, all to allow operation of diesel-electric locomotives. Today the trackage is operated as a branch of the Soo Line R.R.

2. CAPITOL CAR LINE

Bismarck, N.D.

The State Capitol Building at Bismarck, N.D., at the turn of the century, was slightly over one mile from the city hotels and railroad depot; the transportation of employees and members of the Legislature to and from the building had always been difficult and inconvenient. Thus a bill was passed appropriating funds with which to build an electric railway from downtown Bismarck to the Capitol Building. It was also decided to remodel the building heating plant and construct a lighting plant in connection with the power plant for the electric railway.

The railway was constructed to 4'8½" gauge using 45 lb. T rail. Track was laid from the Soo Line Ry. depot at 9th St. and Main Ave., on Main Ave. to 4th St., and north on 4th St. to the State Capitol. About two-thirds of the line was through the city and on city streets; the other one-third ran through what was known as the Capitol Park Addition. Inside the city proper the grade of the track was at the established grade of the city streets. On that part of the line running through the Capitol Park Addition, a cut of 4 ft. was made for about 300 ft.; a fill varying from 0 ft. to 8 ft. for over 600 ft. long, and another fill varying from 0 ft. to 6 ft. about 400 ft. long were required. The overhead poles were of cedar and 30 ft. long. The line was constructed, completed and opened for service during 1903. According to the 1907 U.S. Census total track was 1.50 miles (no sidings) with 1.25 miles of span wire construction and .25 miles of side bracket construction.

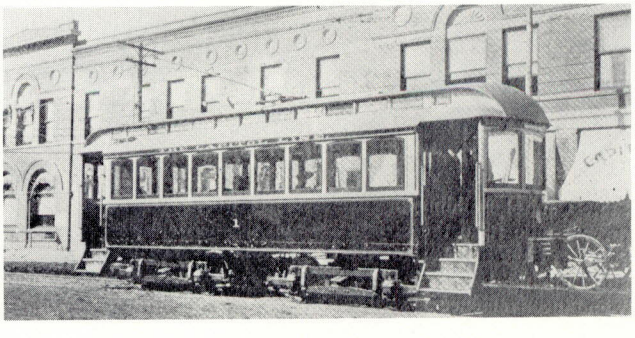
The power supply for the railway line was originally furnished by one Ideal 14" x 14" engine, built by A.L. Ide & Sons, Springfield, Ill., directly connected to one Commercial Electric Co. 100 KW, 550 volt D.C. generator, running at 275 r.p.m. According to the 1907 U.S. Census power equipment consisted of one 150 h.p. Heine boiler, one 175 h.p. Ide engine, and two Ide generators of 175 KW total capacity.

The single piece of equipment owned was a double truck passenger car built by American Car Co. of St. Louis, Mo., in 1903; it was 34'6" long over end sheathing, and fitted with fourteen reversible rattan seats and four stationery ones. Mechanical and electrical equipment consisted of two Brill 27A trucks, four Westinghouse 12-A motors (30 h.p. each), two Westinghouse controllers, and Christensen air brakes. The car was equipped with standard Janney couplers as it was expected to have two or three special hopper cars built for hauling coal to the power house. (It was proposed to construct a track connection with the steam railroad running to the mines, located about 25 miles from Bismarck; the special cars sent to be loaded, then switched to the electric railway and hauled to the Capitol.)

At an unknown date the track was cutback on Main Ave. from 9th St. to 5th St. Also at an unknown date, the double truck passenger car was apparently disposed of, and replaced with a single truck, semi-convertible car (painted blue) probably acquired second-hand.

From the very beginning the line was not a financial success. The population of Bismarck grew from 6,000 persons in 1913 to 7,122 persons in 1924. The fare was still 5 cents in 1924. The 1927 U.S. Census provides some interesting figures: Track mileage — 1.12 miles (no sidings); Equipment — one passenger motor car (one-man operated); Statistics — 51,081 passengers carried, 18,000 car miles operated, and 99,000 KWH of electricity consumed; Investment in road and equipment — $22,400; and Revenue $2,554, Expenses $5,600 (Wages were $2,700), Deficit $3,046. Presumably the deficits were justified by the effective solution to the transportation problem.

The manager-motorman during the entire existence of the line was one Mickey O'Connor, a genial Irishman who had once driven stage on the Bismarck to Deadwood (S.D.) line. He had many friends among the legislators who found it hard to resist his pleas to keep the electric railway in operation. However the end finally came on February 28, 1931, when the last run was made. The body of the streetcar became a lunch wagon in Mandan, N.D.



Capitol Car Line 1 in Bismarck about 1914. (Joe Hutchinson collection)

SECTION X MINNESOTA TRANSPORTATION MUSEUM INC. COMO-HARRIET STREETCAR LINE

Lake Harriet, Minneapolis

At the end of streetcar operation in Minneapolis, in June, 1954, the Minnesota Railfans' Association acquired Twin City Rapid Transit Co. streetcar 1300. The car was moved by the Milwaukee Road to a spur track at the Minneapolis-Moline Company's Hopkins plant for storage. In 1962 a group of transportation enthusiasts joined together with the objective of restoring and displaying 1300. The Minnesota Transportation Museum was formed and acquired 1300 which was then moved by truck to the Minnesota Transfer Ry. roundhouse in St. Paul. There MTM members completely renovated the car. Plans were formulated for a special weekend operation offering rides for those who might like to take a streetcar ride once again. To provide electricity, a Dodge gasoline truck engine was directly connected to a G.E. trolley bus motor re-wired as a 600 volt D.C. generator; this was mounted on a four-wheel section car trailer which could be attached to and pulled by 1300. The Minnesota Transfer Ry. granted permission to use certain yard trackage in the St. Paul Midway district. The final result was eleven days of operation between May 11th and September 8th, 1963, during which 8,919 persons rode the car. This led MTM to revise its philosophy to include operation of restored historical vehicles for the benefit, education and enjoyment of all citizens wherever and whenever possible.

In 1969 MTM officers learned that a portion of the TCRT Harriet Right-of-Way along the shore of Lake Harriet between the Linden Hills Blvd. stop and the 39th-40th St. (Cottage City) stop, which had remained relatively intact following abandonment, was owned by the Parks & Recreation Department of the City of Minneapolis. Negotiations with the Department resulted in the lease of the right-of-way for construction of track and overhead wire on which 1300 would be operated for the public.

Construction progressed as rapidly as volunteer weekend labor and funds provided by donations and dues permitted.

1. During 1970 a steel carhouse was constructed underneath the Linden Hills Blvd. bridge and the carhouse trackage laid.
2. The single track main line from Linden Hills Blvd. to the former 42nd St. station platform was completed during 1971 and 1300 moved from the Minn. Transfer Ry. roundhouse to the Linden Hills carhouse.
3. During 1972 the single track main line was extended northward to the William Berry Road bridge and most of the overhead poles were set in the ground.
4. During 1973 much more was accomplished:

A. a switch and siding, together with a storage building, were constructed for storing construction and maintenance equipment, tools, and materials at the Linden Hills carhouse.
B. main line single track was extended northward under the Wm. Berry Rd. bridge to the end of the existing right-of-way.
C. overhead trolley wire was erected over the entire line and equipment for converting purchased 480 volt A.C. to 600 volt D.C. was installed in the Linden Hills carhouse.
D. the body of Duluth St. Ry. 265 (ex-TCRT first 1791), remarkably well-preserved despite many years in the woods as a private lakeshore cottage, was acquired and moved to MTM shops in St. Paul for restoration and use as a second streetcar at Lake Harriet.

All of the foregoing work was accomplished by MTM members volunteering their time and effort and financed by membership dues and substantial donations of the business community and countless private citizens.

The first operation for the benefit of the public began August 19, 1971, from Linden Hills Blvd. to the 42nd St. station platform. Electricity was furnished by the same portable power unit that was used in 1963. As the track was completed northward, operations were extended accordingly. Upon completion of the overhead trolley wire, the use of the portable power unit was discontinued, the first operation "under the wire" taking place August 25, 1973. Operating personnel are all MTM members, volunteering their time. Between Memorial Day weekend and Labor Day weekend service is provided on Wednesday and Friday evenings, Saturday and Sunday afternoons and evenings. During September service is reduced to Saturdays and Sundays only, while in October only Sunday service is operated.

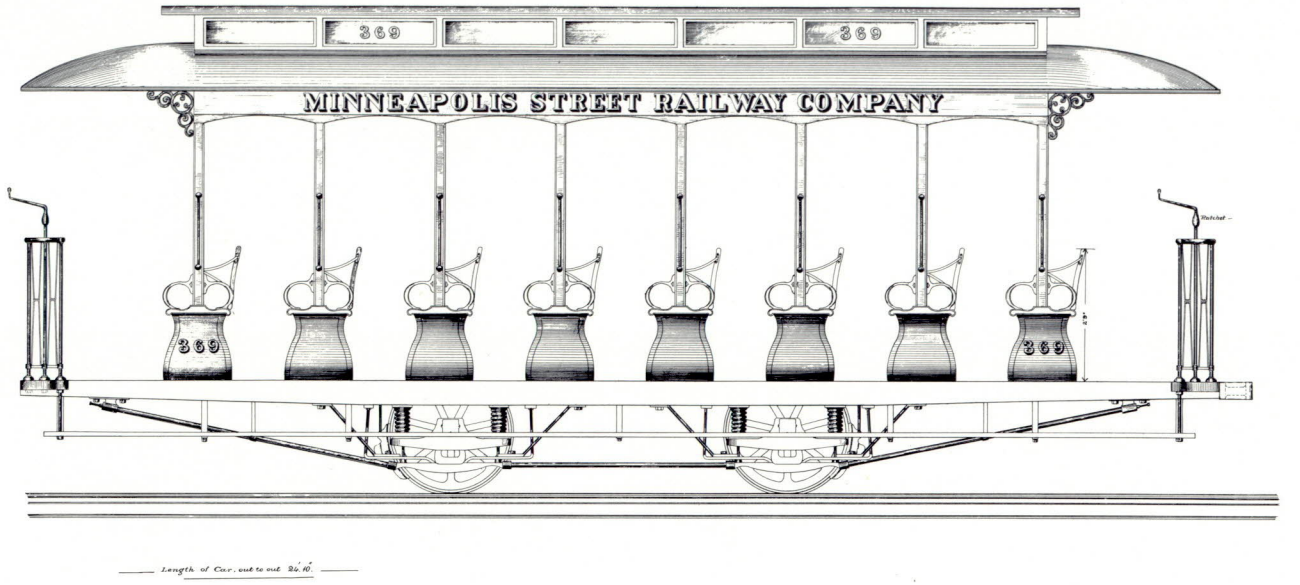
As of the end of 1974, 2,812 lineal feet of track (.53 mile) was in place. Work to be done in 1975 and future years includes construction of:

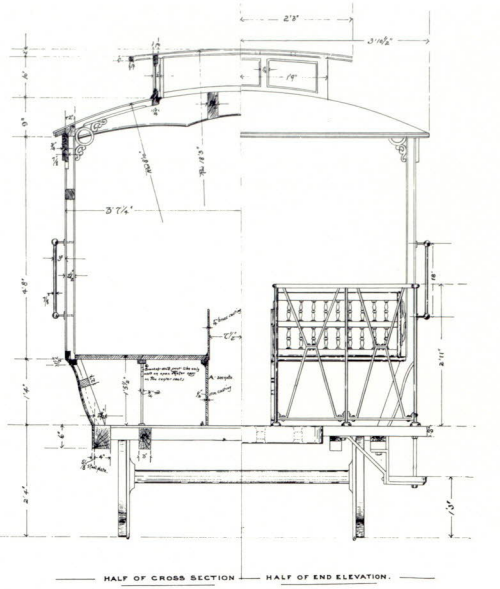
1. a turning loop on P & R Dept. property at the north end of the line;
2. a passing siding at the 42nd St. station platform and pedestrian underpass; and
3. a turntable at the south end of the line.

All of the foregoing are necessary to permit continuous forward operation of two streetcars simultaneously on the line. This work when completed would give total track of approximately 4,422 lineal feet (.84 mile). The completed restoration of Duluth St. Ry. 265 would provide the second car for the operation.

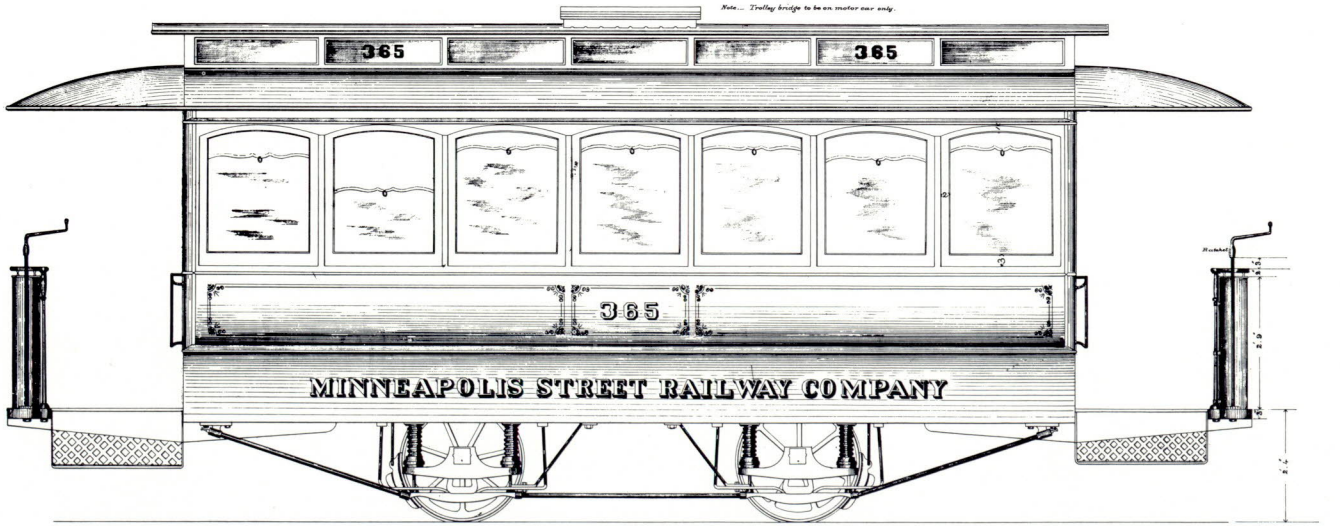
While this electric railway was not built to provide the conventional services its predecessors did, it is the sole existing example in Minnesota of the electric railway, a living symbol of a now distant era. By this present day operation, we are able to remember and preserve that wonderful age when all the world was young and gay.

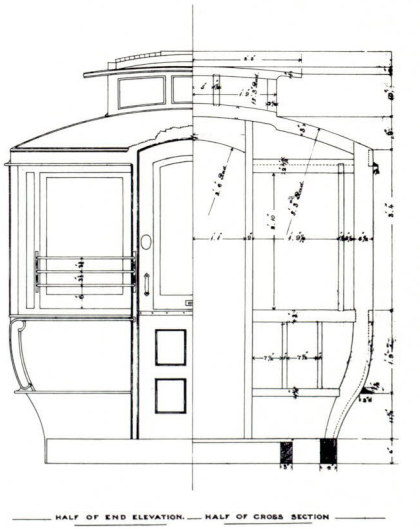
Former Twin City Rapid Transit Co. streetcar 1300 approaching William Berry Road bridge northbound on track laid by the Minnesota Transportation Museum Inc. on the former Harriet right-of-way. (Larry Schreiber)



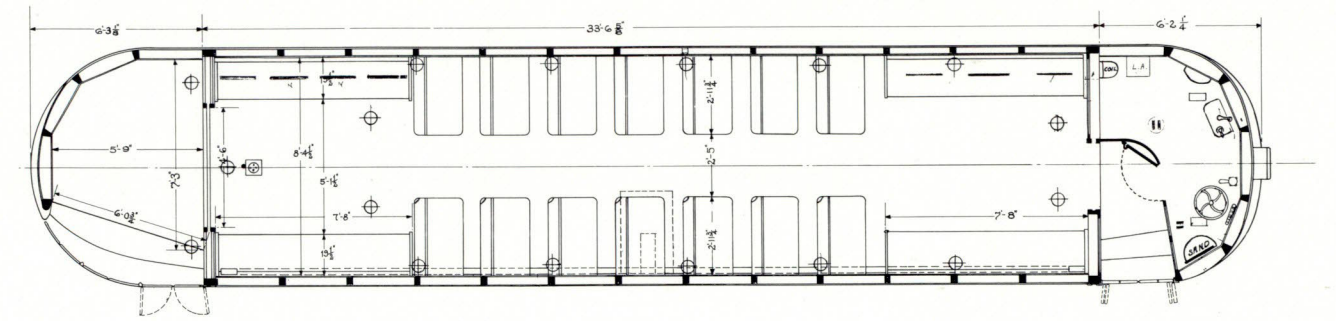


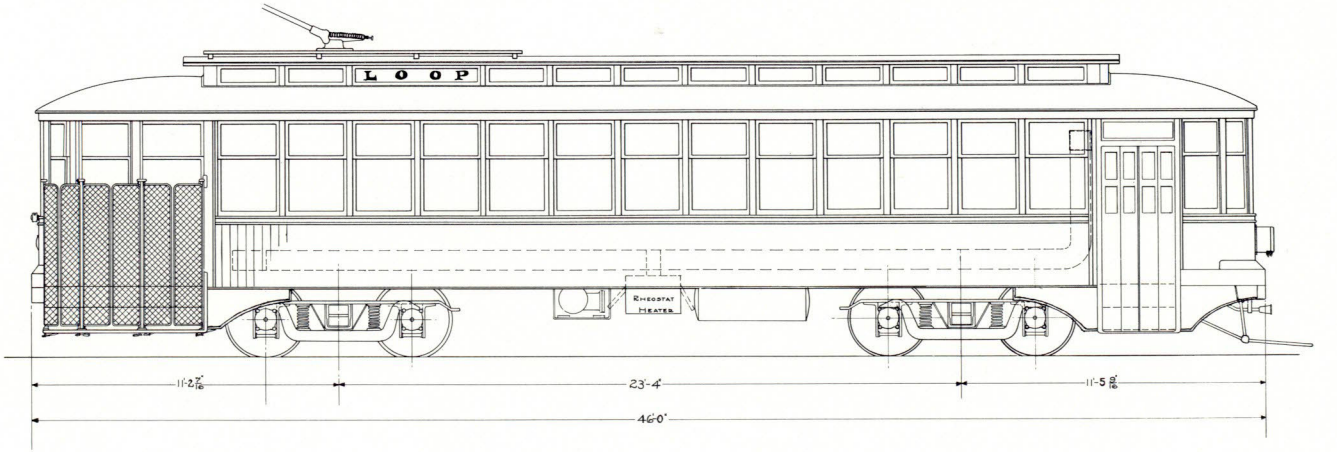
Minneapolis St. Ry.
Summer Car Feb. 1890
Scale 1/4″ = 1'0″



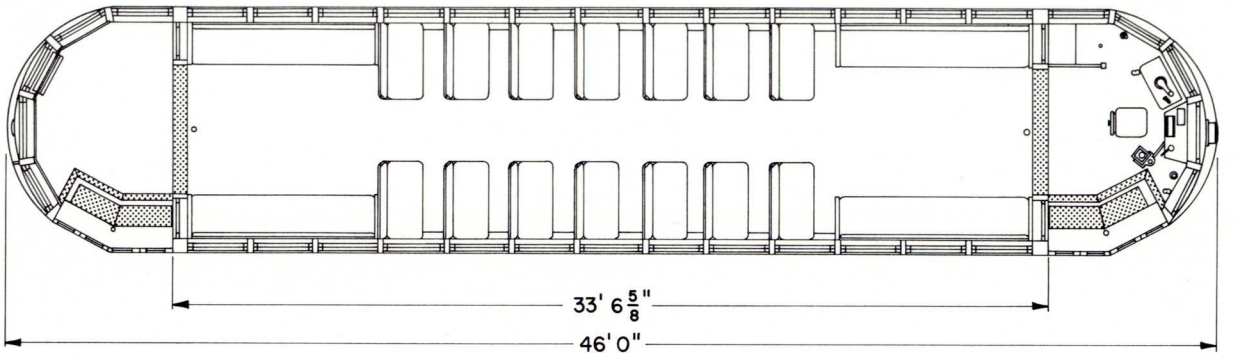


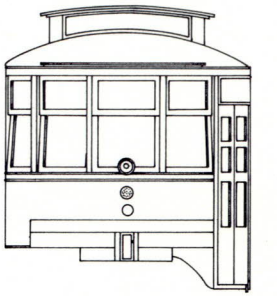
Minneapolis St. Ry.
Closed Car Jan. 1891
Scale 1/4″ = 1'0″

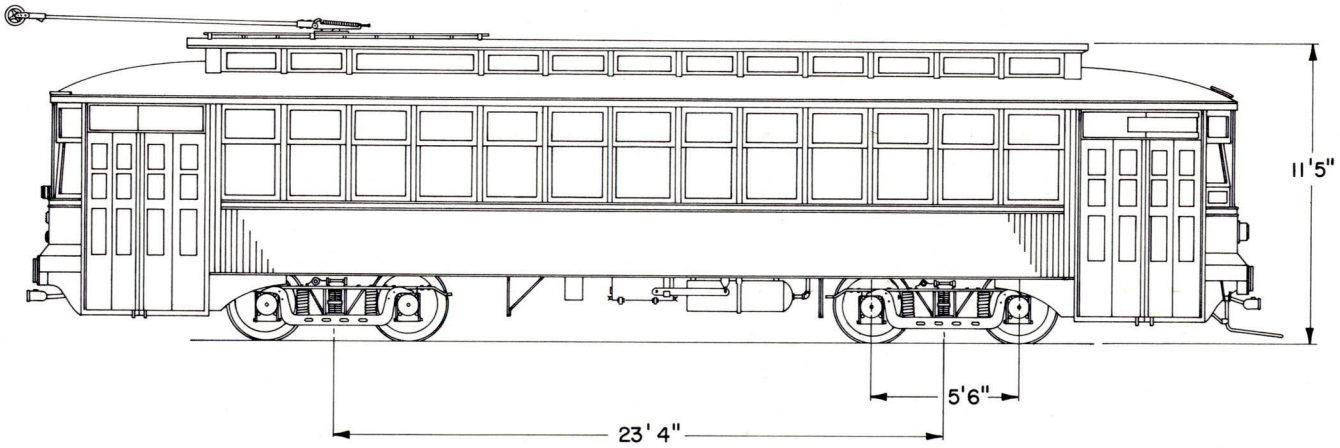


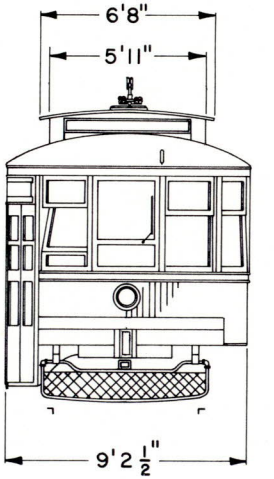


Twin City Lines
Cars 1254, 1266-1292 Class I-8
Scale 3.5 mm. = 1'0"

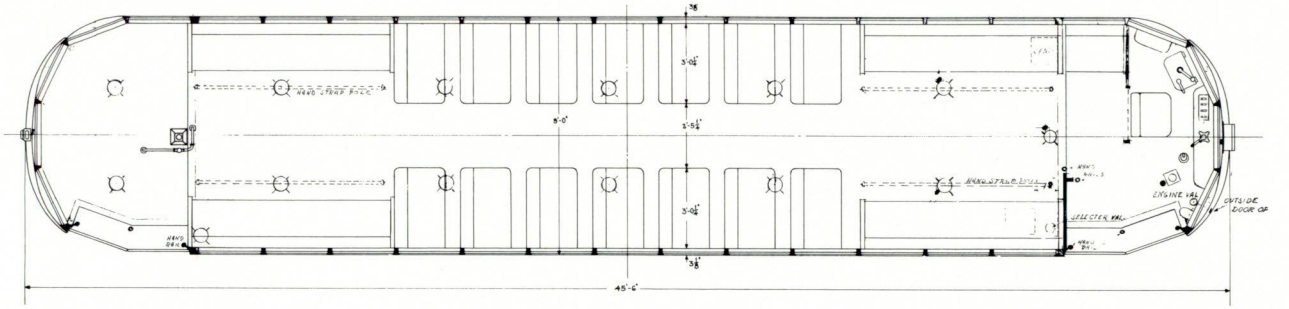




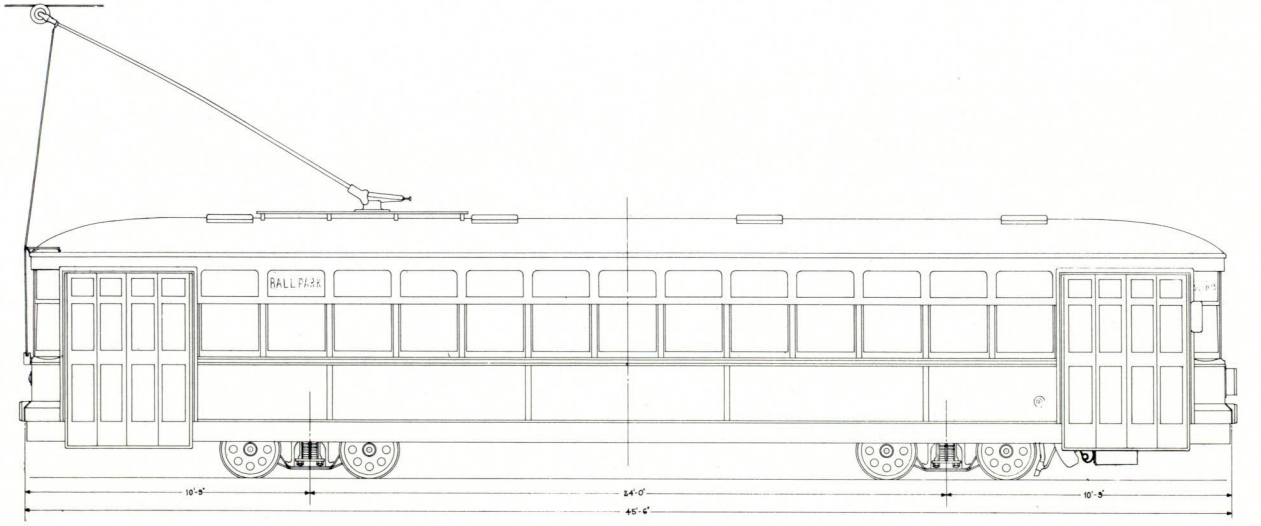




Twin City Lines
Cars 1293-1328 Class N
Scale 3.5 mm. = 1'0"
Drawn: John Stein Nov. 1962
Re-drawn: Kent Dorholt Feb. 1976



Capacity: 50 seated - 75 standing



Twin City Lines
Cars 2006-2030
Scale 3.5 mm. = 1'0"

ACKNOWLEDGMENTS and references

Producing a volume of this specialized nature is obviously the result of years of painstaking research and collecting on the part of many persons. In our situation this effort has extended over a period of thirty-plus years, as an avocation for the majority of contributors. No doubt some acknowledgments have been overlooked due to the vast quantity of material processed; if any slight has occurred it has been unintentional.

Most of the information on the Twin City Rapid Transit Co. was researched and compiled by Edwin H. Nelson and myself, some of which was published in Interurban's Special 14, "The Electric Railways of Minneapolis and St. Paul", during 1953. Extensive research has continued since then, the results of which have allowed for a much more informative presentation.

The excellent coverage of the Duluth-Superior Traction Co. is due entirely to the efforts of James Kreuzberger and Wayne C. Olsen. We were fortunate in that officials of the Duluth companies preserved many old files, records and photographs.

Through the efforts of Wayne Olsen and the St. Louis County Historical Society, information on the Mesaba Railway compiled by Jay O. Bergerson was located and preserved. Mr. Bergerson served simultaneously as Auditor, Assistant Treasurer, Purchasing Agent, and General Passenger & Freight Agent of the company, and accumulated extensive data on every facet of the company when it entered receivership during 1924.

Company officials and employees assisted considerably.

Twin City Rapid Transit Co.: D.J. Strouse, Sibbald MacDonald, L.G. Barnes, L.G. Bakken, L.E. Erickson, E.J. Whittlesey and H.P. Jacobsen.

Minneapolis Anoka & Cuyuna Range Ry.: Arnold A. Kranhold.

Minneapolis Municipal Waterworks Ry.: Myron E. Handy.

Central Warehouse Co.: Harry L. Bratnober.

Mesaba-Cliffs Mining Co.: Richard N. Lunn.

Hanna Ore Mining Co.: Clarence N. Nordstrom and Richard N. Paull.

Data for certain of the track maps was obtained from: Cartwright & Olsen, Surveyors, Minneapolis; P.R. McLagan & Son, Surveyors, West St. Paul; and Oliver Iron Mining Co.

All map drafting was performed by Kent Dorholt.

Individuals who provided information were many.

Charles J. Sulzbach
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Joe Hutchinson
Robert Bowes Sr.
H.E. Callander
Frank A. King
Kenneth Fletcher
Aaron Isaacs
Richard Francaviglia
Harold E. Cox

Winona: Clarence J. Vincent

Fargo-Moorhead: G.O. Anderson

Mankato: Cecil H. Jones and Frank Butts

St. Cloud: Albert Jonas

Breckenridge-Wahpeton: Florence Purdon and Stanley S. Watkins

E. Grand Forks-Grand Forks: Keith Johnson, D.E. Mack and Stuart W. Abbott

The cover painting is of a Twin City Rapid Transit Co. high-speed suburban car operating over the Deephaven line on a cold winter's night, through the permission of Forrest Johnson and Gil Reid.

In these days of multiple photocopies of photographs it was difficult to locate quality prints or the originals. Many photographs had no identification whatsoever as to the identity of the photographer. Because of these complications, the credit for each photograph is included as part of the caption. If credit is not given to the proper photographer, we apologize.

Because of the long period of time over which this research was performed, a complete bibliography was not maintained. Much data was obtained through company files, records, maps which, unfortunately, no longer exist. Outside of company files, the following sources were visited and pertinent reference books, history books, files, maps, records, publications and artifacts examined.

Minnesota Department of Public Service (formerly the Minnesota Railroad and Warehouse Commission)
Minnesota Historical Society
Hennepin County Historical Society
St. Louis County Historical Society
Blue Earth County Historical Society
North Dakota Historical Society
University of Minnesota-Engineering Library
Minneapolis Public Library
St. Paul Public Library
James J. Hill Reference Library
Duluth Public Library
Minneapolis Star and Tribune
St. Paul Dispatch and Pioneer Press
Duluth Herald and News Tribune
Anoka Herald

Various trade publications researched, some located at the foregoing sources, including the following.

Street Railway Journal, later Electric Railway Journal
Electric Railway Review
Electrical Northwest, and Street Railway and Electrical

News, published in St. Paul from October, 1891, through December, 1894.
Brill Magazine
McGraw Electric Railway Directory
Trains Magazine
Railroad Magazine
U.S. Census of Electrical Industries, 1890 to 1937
U.S. Geological Survey topographic maps
Valuation of the Minneapolis Street Railway, January 1, 1916, by Frederick W. Cappelen, Engineer, City of Minneapolis.

The enthusiastic and generous cooperation of the many persons who provided assistance, information, and photographs is gratefully acknowledged. We hope they will consider the final result worth the effort.

Russell L. Olson

Looking north on the Harriet right-of-way, Minneapolis, from the Cottage City stop in the early 1900's. The William Berry Road bridge appears to be newly completed. The southbound car is operating on the "20th Ave. to Harriet" line. (Sweet Studios; Robert Bowes collection)

A winter evening scene on Twin City Lines Deephaven branch line painted by Gil Reid for Forrest Johnson.

THE
ELECTRIC RAILWAYS
OF
MINNESOTA
SUPPLEMENT

Russell L. Olson

1990

Minnesota Transportation Museum Inc.
P. O. Box 1796 Pioneer Station
St. Paul, Minnesota 55101

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INTRODUCTION AND ACKNOWLEDGMENTS

Shortly after THE ELECTRIC RAILWAYS OF MINNESOTA was published, old corporate records of the subsidiary companies of the Twin City Rapid Transit Co. were discovered in the basement of the Nicollet Bus Garage, Minneapolis. Included were minute books, construction cost records, valuation reports, and real estate records. These were donated to the Minnesota Transportation Museum Inc. by the Metropolitan Transit Commission and MEI Corporation (successor to TCRT). I have examined all these records searching for information that would supplement or correct the book. The results of this examination comprise this Supplement.

Sales of the book resulted in correspondence from several individuals which provided additional information and clarified certain details.

Raymond F. Corley	Eugene R. Boswell
James J. Buckley	Allison Chandler
Richard Hordern	George Krambles
Edward B. Watson	Stanley F. X. Worris

Through the efforts of Byron D. Olsen several right-of-way/track maps and historic documents of the Minneapolis & Northern Ry. and Minneapolis, Anoka & Cuyuna Range Ry. were obtained for the MTM from the family of W. D. Lovell.

Goodrich Lowry, son of Horace Lowry and grandson of Thomas Lowry, has written a biography of his grandfather, entitled STREETCAR MAN, published in 1979. His research indicates that the manner in which Thomas Lowry became involved with the Minneapolis St. Ry. was somewhat different than that related in the 1909 MSR history written by Calvin Goodrich. In this Supplement I have summarized the two accounts and combined them with information from the corporate minute books. Reading STREETCAR MAN is highly recommended for its fascinating account of Thomas Lowry's life.

Clarence J. Vincent was responsible for most of the Winona information in the book. He subsequently researched the Winona and LaCrosse (Wisconsin) newspaper files from the early 1880's through the late 1930's. This made possible a complete rewriting of the Winona history and the addition of the LaCrosse history. Both are included in this Supplement.

Garrie L. Tufford, a narrow gauge railroad historian, exhaustively researched Minneapolis newspaper files for information on the Minneapolis, Lyndale & Minnetonka Ry. (The Motor Line). This led to additional extensive research on his part involving many other sources. Sufficient material is now available for an entire book about The Motor Line. Some

information from his research is used in this Supplement, identified by his initials in parenthesis, (GLT), at the end of each paragraph containing the information.

Russell L. Olson

SECTION I

TWIN CITY RAPID TRANSIT CO.

CHAPTER 1 GENERAL HISTORY

Minneapolis St. Ry.

1. The company formed by the city's first mayor was the Minneapolis Horse Rail Road Co. It was incorporated during December, 1867, by Benjamin S. Bull, Frederick A. Gilson, William S. Judd, Dorilus Morrison, and Godfrey Scheitlin.

Col. William S. King's financial difficulties were the cause of Lowry's getting involved in the MSR. King had acquired 1400 acres of choice real estate around Lakes Calhoun and Harriet which he named Lyndale Farm. This property was heavily mortgaged and at that time well outside the Minneapolis city limits. The MSR was incorporated during 1873 with the objective of providing public transportation from Minneapolis to Lyndale Farm.

Cash was in short supply at this time so King turned to a close friend, Philo Remington, an owner of the Remington Arms Co., Ilion, N.Y. The Remingtons had previously undertaken other manufacturing ventures and built a steam powered streetcar in the fall of 1872.

Philo Osgood, manager of Osgood's Hotel in Ilion, owned by the Remingtons, subscribed to a majority of the capital stock of MSR. The first stockholders were: Osgood 2,490 shares; S. E. Neiler (Cashier, Northwestern National Bank, Minneapolis) 5 shares; and Col. King 5 shares. While capitalized at $250,000 (2500 shares @ $100 each), only a 5% assessment or $12,500 was immediately paid in. The Remington steam streetcar was shipped to Minneapolis, tested and demonstrated for several days on the C. M. & St. P. Ry. tracks, then shipped back to Ilion. Shortly thereafter a horsecar track was laid on 2nd St. The financial collapse of Jay Cooke & Company in the fall of 1873 (building the Northern Pacific Ry.) hit Minneapolis hard. The horsecar track was taken up without ever being used.

The resulting financial depression seriously affected Col. King's finances. During 1875 creditors had attached most of his real estate. He appealed to Philo Remington for financial assistance which resulted in an inspection trip to Minneapolis by Remington's lawyer, Amos H. Prescott, and banker, F. C. Shepherd. They were hosted in Minneapolis by King and his lawyer, Thomas Lowry. The result was that King received his financial assistance and Lowry agreed to become involved in the Minneapolis St. Ry.

The minutes of the annual stockholders meeting of MSR held July 4, 1876, indicated capital stock ownership was now: Osgood 10%, Prescott 12%, Shepherd 20%, Carrie King (Col. King's wife) 40%, James Tuckerman 14%, and Lowry 4%.

With the depression continuing, King's financial condition steadily worsened. He was forced to sell most of his interest in MSR to those whom it had been pledged as security for his indebtedness. During 1877 his 40% interest was reduced to 10%, the 30% being transferred to Stephen Bowen (Boston, Mass.) 5.6%, and F. D. Robison (Cleveland, Ohio) 24.4%. (The latter interest was subsequently changed to C. H. Hathaway & Co., and still later to Hathaway & Robison.) On October 31, 1877, Lowry, acting as King's lawyer, filed a petition in bankruptcy. On April 8, 1878, King's bankrupt estate, the principal asset of which was Lyndale Farm, was sold to Philo Remington. It was at this time that Lowry decided to acquire the controlling interest in MSR.

This was accomplished through A. G. Dickerman (not Dickerson) and Robert S. Innes, the local agent for Philo Remington. 1400 shares were acquired by July 2, 1878, mostly in exchange for Minneapolis real estate. Lowry held 1,340 shares, with 10 shares each by W. W. McNair, C. L. Morrison, T. J. Buxton, H. M. Carpenter, T. F. Andrews and C. H. Prior. The 1879 annual stockholders meeting is not clear as to stock ownership. By the July 6, 1880, annual meeting the remaining 1,100 outside shares had been acquired; Lowry held 1,937 shares, McNair and C. L. Morrison 280 shares each, and W. W. Herrick, C. G. Goodrich, G. H. Morrison 1 share each.

The MSR Board of Directors September 1, 1880, authorized an increase in the capital stock from $250,000 to $1,000,000. As the corporate by-laws required payment of 5% of the par value at the time of subscription for the stock, the by-laws were changed to allow the stock to be issued as "full paid stock" due to the "increased value of rights and franchise". At the Board of Directors meeting in April, 1881, a resolution was passed that because of MSR's current good financial condition but previous financial embarassment, an entry in the accounting records be made entering a liability to Lowry in the amount of $258,273.50 owed since 1875 for cash advances, legal services, property conveyed, travel expenses for eastern trips to establish credit and sell bonds, and personal endorsement of MSR notes payable. During August, 1881, the additional stock was issued resulting in Lowry holding 9,984 shares with 4 shares each by C. L. Morrison, McNair, Herrick, and Goodrich. Lowry was President; Morrison, Vice President; Goodrich, Secretary; and Herrick, Treasurer.

Page 14

The "Soo Line" was incorporated during 1883 by W. D. Washburn

H. T. Welles, Charles M. Loring, Charles Pillsbury, Thomas Lowry and Clinton Morrison.

Capital stock subscriptions were received June 5, 1872. Each of the incorporators except Lafayette Shaw subscribed for 300 shares each; in addition, William Crooks (Chief Engineer of the St. Paul & Pacific R.R.) subscribed for 50 shares. Officers elected were: J. C. Burbank, President; John Wann, Vice President; William Dawson, Treasurer; and H. L. Carver, Secretary and Superintendent. On July 20, 1872, Carver sold his interest to and was replaced as an officer by W. R. Marshall.

On November 22, 1872, Marshall purchased the Burbank, Hewitt, and Thompson interests giving him 1,500 shares of the 3,050 outstanding. W. H. Dean purchased the Wann, Wright, and Bass interests giving him 1,250 shares. The corporate by-laws were then changed reducing the Board of Directors from nine persons to five. Elected were: W. R. Marshall, President; W. H. Dean, Vice President; J. Oscar Dean, Secretary; William Dawson, Treasurer; and Lafayette Shaw. The disposition of William Crook's shares was not stated.

As payments became required for the stock subscriptions, stock ownership continued to change. In August, 1873, the Deans resigned, being replaced by Nathaniel P. Langford, Vice President; and Benjamin S. Cook, Secretary and General Manager. In September William Dawson resigned, replaced by Newton Bradley.

The property was leased to a partnership of Lafayette Shaw and W. R. McComb for a term of three years from August 1, 1874. Rental the first year was $600 per month; during the second and third years, 12% per year on the actual investment. Effective August 15, 1875, the partnership was dissolved; McComb assigned his interest to Shaw who had negotiated a new lease for a term of five years from August 1, 1875, at an annual rental of $18,400.

Financial difficulties were encountered during 1876. On October 10th, Langford, Bradley, and Cook resigned as Directors. They were replaced by Erasmus D. Whiting, Smith Ellison and Orlando Farrell, probably representing the bondholders.

On the date of the sheriff's sale in 1877 the property consisted of 3.75 miles of track, two horsecar barns, 15 horsecars, 34 horses, six mules, two snow plows, and three double-canvas-top sleighs.

The first Board of Directors of the St. Paul City Ry. was elected October 30, 1877: Alfred H. Porter, President; William H. Phillips, Vice President; William G. Dominick, Secretary (all of New York); Henry J. Horn; and James R. Walsh, Treasurer (both of St. Paul). On November 4, 1878, Horn resigned and was replaced by Thomas Cochrane, Jr.; James Walsh was appointed General Manager. Directors' meetings were held at the office of Dominick & Dickerman, Bankers and Brokers, 66 Broadway, New York.

On December 6, 1878, the bondholders exchanged their bonds and interest coupons for common stock; 660 shares of $100 par value stock were issued for the 55 bonds and four interest coupons on each bond. Additional stock was sold to the existing stockholders to pay for the cost of building the St. Anthony Hill horsecar line: two shares of stock for each bond. Thus an additional 110 shares of stock were issued making the total outstanding stock 770 shares or $77,000.

The 1880 reconstruction and expansion program was financed by issuing, for cash, an additional 730 shares of stock, or $73,000. A total of 1500 shares of stock was then outstanding. As of January 4, 1882, there were 30 stockholders, located in the following states: New York, 22 persons, 1344 shares; Connecticut, 4 persons, 110 shares; Minnesota, 3 persons, 26 shares; and Kentucky, 1 person, 30 shares. The Minnesota stockholders, all of St. Paul, were: J. F. Alexander, 10 shares; Charles Boardman, 10 shares; and James R. Walsh, 6 shares. Thomas Cochrane, Jr., held 46 shares but with a New York address.

The change of ownership took place February 11, 1882. The 1,500 shares of stock had been purchased, 300 shares each, by Francis B. Clarke, Herman Greve, William R. Merriam, Ansel Oppenheim, and Thomas Lowry. Clarke was elected President; Greve, Vice President; and Merriam, Secretary-Treasurer. By January 8, 1883, Greve and Oppenheim had reduced their holdings by 75 shares each, these shares going to Arnold Kalman, a business associate of theirs.

The corporate minutes contain no mention of the 1883 stock ownership changes related in other histories. The stockholders had voted June 24, 1882, to increase the authorized capital stock from $150,000 to $1,000,000 to be issued as "full paid stock". This was accomplished at the July 6, 1883, stockholders meeting at which Clark, Greve and Oppenheim resigned and were replaced by C. G. Goodrich and C. L. Morrison. Directors and officers elected at this meeting were: Thomas Lowry, President; W. R. Merriam, Vice President and Treasurer; H. W. Pearce, Secretary; C. G. Goodrich, C. L. Morrison, and Col. Alvaren Allen.

The funds needed to finance new construction were obtained by transferring some of the recently issued capital stock. As of

January 14, 1884, substantial changes had taken place. Lowry held 1,666 shares, Calvin M. Winch of Boston was Vice President holding 4,999 shares, Merriam was Treasurer holding one share, Goodrich and Morrison held 1,666 shares, and unidentified persons held two shares, for a total of 10,000 shares. Volney S. Ireys of Minneapolis was Secretary. By April 1,1885, stock ownership was again under local control: Lowry 6,668 shares, Goodrich and Morrison 1,666 shares each. John H. Randall and A. Z. Levering (Lowry's personal assistant), Secretary, were elected Directors.

The significance of the September 15, 1886, date is much different than related in other historical references. As related in the foregoing paragraphs, Lowry had been in control of SPCR since 1883. According to the corporate minutes, the Directors of each company had decided during early 1886 that it was necessary to increase the capitalization of each from $1,000,000 to $5,000,000 to finance continued improvements and expansion. Lowry entered into an agreement with Lee Higginson & Company of Boston, dated August 10, 1886, that provided for the purchase of this additional capital stock by Charles Fairchild of the firm, and by other persons, both locally and in the east. Lowry also agreed to sell some of his existing capital stock. The agreement also provided that management would remain under control of local persons and that Lowry's policies would be continued. Goodrich and Morrison were also parties to the agreement insofar as SPCR was concerned. The formalization of the transaction was to occur between September 1st and 12th, 1886.

The necessary resolutions to increase the capital stock authorized were passed during August, 1886. In each company the stock was to be issued as "fully paid stock to existing stockholders in lieu of dividends and compensation for services". The $4,000,000 increase on each company's books was charged to a property account titled "Franchise". After issuance of this additional stock the holdings were:

MSR: Lowry 49,920 shares; Morrison, Goodrich, Herrick, and Martin B. Koon (who replaced W. W. McNair after his death in May, 1886), 20 shares each.

SPCR: Lowry 33,340 shares; Goodrich and Morrison 8,330 shares each.

The only immediate changes involved SPCR. Morrison resigned as Treasurer and Director, being replaced by W. R. Merriam as Treasurer and Thomas P. Wilson as Director. J. H. Randall resigned as a Director, being replaced by D. C. Shepard.

As cash was needed to finance construction, stock was transferred according to the agreement, increasing the eastern stockholdings. Such changes were more rapid and drastic in SPCR due to the expensive cablecar line construction and lesser profitability of that company. The corporate minute books for both MSR and SPCR

reflect these changes which were numerous and complicated. Those most significant are summarized in the following four paragraphs.

Officers and Directors as of January 1, 1888:

	MSR	SPCR
President, Director	Thomas Lowry	Thomas Lowry
Vice President, Director	C. L. Morrison	T. P. Wilson
Secretary, Director	C. G. Goodrich	
Secretary		A. Z. Levering
Treasurer, Director	M. B. Koon	
Treasurer		W. R. Merriam
Director	W. D. Washburn	D. C. Shepard
Director	J. S. Pillsbury	B. J. Stevens
Director	F. H. Peavey	George B. Harris *

* General Manager of the Chicago, Burlington & Quincy R. R. representing the Boston stockholders.

Local stockholdings were lowest on:
January 9, 1888, for SPCR:
Lowry 3,334 shares; Morrison and Goodrich 3,333 shares each; Merriam 1,000 shares; Wilson 2,500 shares; Shepard 1,400 shares; Higginson & Co. 13,625 shares; numerous other persons 21,475 shares. Total 50,000 shares.
April 17, 1889, for MSR:
Lowry 17,480 shares; Washburn and Pillsbury 1,000 shares each; Goodrich, Morrison, Koon and Peavey 500 shares each; Herrick 20 shares; Higginson & Co. 11,326 shares; numerous other persons 17,174 shares. Total 50,000 shares.

On June 12, 1888, Clinton Morrison resigned as Vice President, but not as a Director, of MSR. Calvin Goodrich replaced him as Vice President. E. H. Center was elected Secretary.

By January, 1891, shortly before the formation of the Twin City Rapid Transit Co., the local stockholdings in SPCR had increased slightly. Lowry held 7,126 shares, Merriam 500 shares, Morrison 4,249 shares, and Goodrich 4,250 shares.

The Board of Directors of each company authorized the listing of their capital stocks and bonds on the New York Stock Exchange during August, 1890.

The Twin City Rapid Transit Co. was incorporated at Elizabeth, New Jersey, by H. W. Cannon, George Bliss, G. S. Coe, all of New York, and others. It took several years for TCRT to complete the exchange of TCRT stock for MSR and SPCR stock. As we do not have TCRT corporate minute books we do not know how Lowry and his associates fared with regard to the exchange of stock. Goodrich Lowry calculated the 1886 values as $45 per share for MSR stock

and $25 per share for SPCR stock. He estimates that as TCRT issued $15,000,000 in capital stock the exchange rate was probably two TCRT shares for one MSR share, and one TCRT share for one SPCR share. After all the financial problems of the 1890's were over, Goodrich Lowry states that at Thomas Lowry's death in 1909 he owned 3,000 shares of TCRT's then outstanding 180,000 shares of common stock.

Page 20

Second paragraph: Contrary to statements made in the 1927 TCRT special financial report, the corporate minute books indicate the Transit Supply Co. was incorporated June 12, 1907; the Rapid Transit Real Estate Corp. June 2, 1910; and each corporation began operation in the year of its incorporation.

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Fred Ossanna, President, and Benson W. Larrick, Vice President and General Manager, resigned December 17, 1957.

Investigation of the business transactions made during the conversion from streetcar to bus operation resulted in criminal fraud indictments. The new management also filed a civil suit against the defendants for recovery of the total amount the federal government claimed was lost to TCRT stockholders. The individuals indicted were Fred Ossanna, Benson Larrick, James Towey (former TCRT Secretary-Treasurer), Harry and Fred Isaacs (father and son respectively, operators of American Iron & Supply Co.), Theodore Landy (an associate in the scrap metal business), Earl Jeffords (Minneapolis real estate agent), and Isadore (Kid Cann) Blumenfeld. The latter person was a Minneapolis crime character and liquor figure who allegedly took advantage of his position as a TCRT stockholder to profit individually from the conversion. (The Minnesota Railroad & Warehouse Commission in a 1951 study of TCRT reported that gangsters, including Kid Cann, owned about 16% of TCRT stock.)

The general thrust of the lawsuits was that TCRT assets were sold at below market prices in return for payoffs. Among the losses the government claimed TCRT suffered were the following. (1) Sale of underground cable valued at $938,107 to American Iron & Supply Co. for $122,158. The indictment also stated that American Iron & Supply Co. got all TCRT conversion scrap metal for "grossly inadequate or, in some cases, no consideration". (2) Sale of 11 parcels of real estate for $300,000 to Mid-Continent Construction & Development Co. which held them for the capital gains tax period, then quickly resold them for $475,000. Partners in Mid-Continent were Harry Isaacs and Robert Levitt (a Minneapolis attorney), who had five sub-partners, one being Isadore Blumenfeld. (3) Payment of $107,500 in "unearned commissions" to Jeffords. This included $75,000 for the sale of

the Snelling Station property in St. Paul for which Paul Villaume, a St. Paul real estate agent, previously had been paid a $37,500 commission. The day after Villaume received his commission he contributed $7,500 to the Ossanna Foundation. (4) Sale of 91 late model streetcars to the Mexico City transit system with "grossly excessive discounting of notes and by lent commissions". This loss was in excess of $250,000.

The fraud trials were completed August 6th, 1960. All of the defendants except Blumenfeld were convicted of some of the charges. Blumenfeld was found not guilty of all the charges he faced. The major sentences and fines were:

Ossanna (convicted on 13 counts, including mail fraud and interstate transportation of property taken by fraud): four years in prison, $11,000 in fines, and estimated $5,000 court costs.

Larrick: two years in prison and $3,000 in fines.

H. Isaacs: four years in prison, $11,000 in fines, and estimated $5,000 court costs.

F. Isaacs: one year plus one day in prison; $2,500 in fines.

Jeffords (head of J. & C. Holding Co., real estate dealer): 18 months in prison; $1,500 fine.

CHAPTER 2 TRACK AND OVERHEAD CONSTRUCTION

Minneapolis St. Ry. Horsecar Trackage

Pages 27 to 30

1878

Single track was also built on Washington Ave. So. from 7th Ave. So. to 8th Ave. So.

1880

Single track built on Washington Ave. So. was from 8th Ave. So., NOT 4th Ave. So., to 19th Ave. So.

1882

Second track was also added on Hennepin Ave. So. from Washington Ave. So. to 12th St.

1884

Double track was also built on Riverside Ave. So. from Cedar Ave. So. to 19th Ave. So.

1886

Double track was also built on Cedar Ave. So. from Minnehaha Ave. to Franklin Ave.

The track abandoned on 24th St. was from Minnehaha Ave. to 24th Ave. So., NOT 27th Ave. So.

St. Paul City Ry. Horsecar Trackage

Pages 32 to 34, and 37

The chronology of horsecar track construction related in the book was derived from numerous and differing sources over a period of many years. There was much conflicting information so those sources which seemed most reliable in each circumstance were used. The donated TCRT records included an index of source material used by A. L. Drum & Company in the SPCR valuation report dated January 1, 1922, which indicated that a file of historical information and maps was available at that time. One of the valuation report volumes includes the investment in the horsecar system and includes construction dates. A notebook maintained by an SPCR official was also in the donated material which contained typed transcripts of newspaper articles on construction dating back to horsecar days. So I made a thorough

re-study of all SPCR horsecar track construction. It became obvious during this re-study that Drum & Co. missed some information and mis-interpreted certain other information, so additional judgments on my part were necessary. However much additional and more accurate information was found which is presented in the following pages and on the revised horsecar-cablecar system map.

From 1875 through 1877 the St. Paul Street Ry. used "Crescent" type strap rail, weighing 16 to 19 pounds per yard, laid on stringers fastened to crossties. Beginning in 1878 the St. Paul City Ry. began using "O.G." rail, weighing 24 to 27 pounds per yard, also laid on stringers fastened to crossties. This was a from of strap rail with a configuration similar to the head of girder tram rail. As of December, 1878, one mile of single track of this type construction was estimated to cost $3,800.

The Drum & Co. valuation reported that later construction was of two types. The first consisted of 6" x 6" x 6´0" pine ties laid on 3´ centers, 6" x 6" longitudinal stringers fastened to the ties, and 36 lb. strap rail in 30´ lengths spiked to the stringers, with tie plates under the joints. The second and later type consisted of 6" x 6" x 6´0" pine ties laid on 3´ centers, with 52, 53, and 54 lb. girder rail in 30´ lengths spiked to the ties, with tie plates under the joints. Other sources reported that some 45 lb. girder rail was also used.

1872

The extension on Fort St. west of Seven Corners (the intersection of 3rd, 4th, 7th, and Main Streets) was all single track. Track was NOT built on 7th St. between Seven Corners and Jackson St.

1873

Contradictions abound on the "Wabasha & Park Place" line. Drum & Co. does not list any track on Wabasha St. between 2nd and 3rd Streets; however, another reliable historical source definitely mentions this track. Drum & Co. DOES list single track built on College Ave., NOT 10th St., between Wabasha and St. Peter Streets; this is corroborated by one other source.

1874

The single track was built on College Ave., NOT 10th St., from St. Peter St. to Rice St. It also appears that track on Wabasha St. south of 4th St. was removed and a switch installed at 4th and Wabasha so cars could turn east onto 4th from Wabasha.

1875

Two passing sidings were lengthened (location not specified):

one on 4th St. to 400´ long, and one on 7th St. to 500´ long.

1877

3.75 miles of track were owned at the time of the sheriff´s sale in October.

1879

Single track was also built on St. Peter St. from 4th St. to 5th St.

1880

Track was abandoned on College Ave. from Wabasha St. to Rice St.

Second track was added on Fort St. (W. 7th St.) from Seven Corners to Ann St.

New single track built during the year is more completely and accurately described in the following table.

On	From	To
3rd St.	Seven Corners	Wabasha St.
Wabasha St.	3rd St.	4th St.
Wabasha St.	College Ave.	Iglehart Ave.
St. Peter St.	5th St.	10th St.
10th St.	St. Peter St.	Rice St. & College Ave.
Iglehart Ave.	Wabasha St.	Western Ave.
Western Ave.	Iglehart Ave.	Nelson Ave.
4th St.	Jackson St.	Sibley St.
Sibley St.	4th St.	8th St.
8th St.	Jackson St.	Locust St.
Lafayette Ave.	Westminster St.	Partridge St.
Pearl & Grove Sts.	Jackson St.	Mississippi St.
13th & Somerset Sts.	Jackson St.	Mississippi St.
Mississippi St.	Pearl&Grove Sts.	Pennsylvania Ave.
Jackson St.	7th St.	13th St.

1881

The only construction this year consisted of a single track on Rice St. from Summit Ave. to University Ave. This was built to prevent a competing company from starting construction.

1882

Track actually built was as follows:

Single track on Laurel Ave. from Western Ave. to Dale St.
Single track on Fort St. from Ann St. to Tuscarora St. and Lee Ave.
Double track on 4th St. from Sibley St. to the Union Depot at 3rd St.

Double track on University Ave. from Rice St. to Dale St.
Second track on 4th St. from Jackson St. to Sibley St.; Sibley St. from 4th St. to 8th St.
Second track on Locust St. from 7th St. to 8th St.

Track was abandoned on Western Ave. from Laurel Ave. to Ashland Ave.

1883

Construction on Dale St. and Grand Ave. was all single track. Second track added on St. Peter St. from 4th St. to 10th St.; 10th St. from Wabasha St. to St. Peter St.; and on 4th St. from Wabasha St. to Jackson St.

1884

A revised description of the construction completed this year is given in the following table.

On	From	To
	Single Track:	
St. Peter St.	Iglehart Ave.	Martin St. (Central Ave.)
Martin St.	St. Peter St.	Rice St.
	Double Track:	
W. 3rd St.	Seven Corners	Pleasant Ave.
W. & E. 7th St.	Seven Corners	Jackson St.
Ramsey St.	W. 7th St.	Oak & Forbes Sts.
E. 7th St.	Locust St.	Kittson St.
	Second Track:	
W. 4th St.	Seven Corners	Wabasha St.
Wabasha St.	4th St.	Iglehart Ave.
Iglehart Ave.	Wabasha St.	St. Peter St.
Rice St. (?)	Martin St.	University Ave.
10th St.	St. Peter St.	Rice St. & College Ave.
Rice St.	College Ave.	Summit Ave.
Summit Ave.	Rice St.	Nelson Ave.
Nelson Ave.	Summit Ave.	Western Ave.
Western Ave.	Nelson Ave.	Laurel Ave.
Laurel Ave.	Western Ave.	Dale St.
E. 7th St.	Jackson St.	Locust St.
Locust St.	7th/8th St.	Lafayette Ave.
Lafayette Ave.	Locust St.	Partridge St.
Jackson St.	4th St.	13th St.
13th St.	Jackson St.	Mississippi St.
Mississippi St.	Pearl St.	Pennsylvania Ave.

Track Abandoned:

W. 3rd St.	Seven Corners	Wabasha St.
Wabasha St.	3rd St.	4th St.
4th St.	60´ east of Sibley St.	Union Depot at 3rd St.
Sibley St.	4th St.	8th St.
8th St.	Jackson St.	Locust St.
Pearl & Grove Sts.	Jackson St.	Mississippi St.
Mississippi St.	Pearl & Grove Sts.	13th St.
St. Peter St.	4th St.	10th St.
Iglehart Ave.	St. Peter St.	Western Ave.
Western Ave.	Iglehart Ave.	Nelson Ave.
Rice St.	Summit Ave.	Martin St. (Central Ave.)

1885

Construction on E. 7th St. was all double track. Second track added on W. 7th St. from Ann St. to Tuscarora St.

1886

Construction completed during the year:
Double track on E. 4th St. from Sibley St. to Broadway.
Double track on E. 7th St. from Kittson St. to Forest St.
Double track on Mississippi St. from Pennsylvania Ave. to Acker St.; Acker St. from Mississippi St. to Cortland St.

Track abandoned on W. 3rd St. from Seven Corners to Pleasant Ave. It was reported that this track had never been used as the city council had refused permission for operation.

As of December 31st, 28 miles of track were owned.

1887

Corrected descripion of completed construction:
Single track on Maria Ave. from E. 7th St. to Plum St.
Second track on Grand Ave. from Dale St. to Victoria St.
Double track on Wabasha St. from Iglehart Ave. to University Ave.
Double track on Rice St. from University Ave. to Hatch St.
Double track on 5th St. from Wabasha St. to Wacouta St.
Double track on Ramsey St., Oakland Ave., and Grand Ave. from Oak and Forbes Streets to Dale St.
Double track on Burr St., Minnehaha Ave., Edgerton St., Reaney St., and Payne Ave. from Collins Ave. and Burr St. to York Ave. and Payne Ave.
Double track on Robert St. from 5th St. to Concord St.
Double track on Concord St. from Robert St. to Bancroft Ave.

Track abandoned on:
St. Peter St. from Martin St. (Central Ave.) to Iglehart Ave.
Iglehart Ave. from Wabasha St. to St. Peter St.
Martin St. from Rice St. to St. Peter St.
Rice St. from Martin St. to University Ave.
Dale St. from Laurel Ave. to Grand Ave.

1888

Track construction is more correctly described:

Single track built on:
Kent St. from Rondo Ave. to University Ave.
Rice St. from Hatch St. to Maryland Ave.

Double track built on:
Rice St. from Summit Ave. to Rondo Ave.
Rondo Ave. from Rice St. to Dale St.
Payne Ave., Sims St., and Greenbrier St. from York Ave. to Maryland Ave.; Maryland Ave. from Greenbrier St. to Payne Ave.
Fairfield Ave. from Robert St. to Dakota Ave.; Dakota Ave. from Fairfield Ave. to Winifred St.; Winifred St. from Dakota Ave. to Ohio St.

Track abandoned on:
Summit Ave. from Rice St. to Nelson Ave.
Nelson Ave. from Summit Ave. to Western Ave.
Western Ave. from Nelson Ave. to Laurel Ave.
Laurel Ave. from Western Ave. to Dale St.

1889-1890

The Drum & Co. valuation makes no mention of track being built as horsecar track on E. 7th St. from Forest St. to Duluth Ave.

Single track built on Robert St. from 5th St. to 7th St.
Double track abandoned on Jackson St. from 4th St. to 5th St.

Under the category of original electrification the Drum & Co. valuation included track apparently begun as horsecar track but never used as such, being electrified instead, and in one instance, abandoned.

Double track built in 1889 and abandoned in 1889 on 6th St. from St. Peter St. to Minnesota St.
Single track built on W. 7th St. from Tuscarora St. to Montreal Ave.
Single track built in 1889 on S. Robert St. from State St. to Annapolis St. and in 1890 on State St. from Concord St. to S. Robert St.

Horsecar Turntable Locations

Acker and Cortland
Concord and Bancroft
Fifth and Wacouta
Fourth and Wabasha
Grand and Victoria
Greenbrier and Maryland
Kent north of University
Maria and Plum
Ramsey and Thompson
Rice and Front
Rice and Maryland
Rondo and Dale
Seventh and Lee
Seventh and Montreal
Seventh at 3rd St. horsecarbarn
University and Dale
University east of Kent
Winifred and Ohio

Horsecar Track Mileage

Based on the revised construction dates and track measurements given in the Drum & Co. valuation the following table was made.

Minneapolis (1)				St. Paul (2)			
Year	Built	Aband.	Total	Year	Built	Aband.	Total
1875	4.568		4.568	1872	2.633		2.633
1876	3.422		7.990	1873	1.140	.497	3.276
1877	1.051	.426	8.615	1874	.006	.140	3.142
1878	2.161	.466	10.310	1877			3.75
1879		.771	9.539	1879	1.042		4.792
1880	2.023	.483	11.079	1880	5.372	.076	10.088
1881	7.399	.112	18.366	1881	.460		10.548
1882	11.326		29.692	1882	4.433	.066	14.915
1883	1.259		30.951	1883	1.672		16.587
1884	14.128	.913	44.166	1884	7.653	3.955	20.285
1885	5.294		49.460	1885	2.144		22.429
1886	9.943	1.811	57.592	1886	2.856	.337	24.948
1887	4.976	4.419	58.149	1887	12.100	1.161	35.887
1888	9.492		67.641	1888	7.655	2.640	40.902
1889	1.636	.155	69.122				
Total	78.678	9.556			49.774	8.872	

(1) INcludes Horsecar Barn tracks.
(2) EXcludes Horsecar Barn tracks.

St. Paul Cablecar Track Construction and Mileage

Pages 34-35

Track Mileage according to the Drum & Co. valuation:
Selby Ave. line

4th & Broadway to Selby & Chatsworth	5.886 miles
Selby Ave.-Chatsworth to Fairview	3.553 miles
	9.439 miles

E. 7th St. line	
E. 7th St.-Wabasha to Duluth Ave.	5.346 miles
Total track	14.875 miles

The powerhouse building and equipment information in the Drum & Co. valuation differs from that reported by Frank Trumbull. Following is the Drum & Co. information.

Selby Ave. and Dale St. 1888-1898

Building

One story, brick, 171′ 0" x 172′ 6"; one story, brick addition, 50′ 0" x 172′ 0"; one brick chimney, 6" diameter x 150′ high.

Equipment

Two Allis 28" x 60" Corliss engines, one installed 1887 and one in late 1888; four Wood fire tube, oil burning boilers (150 h.p each); one Westinghouse 35 KW lighting set; two sets of cable winding machinery.

E. 7th St. and Duluth Ave. 1889-1893

Building

One story, brick, 80′ x 124′; one story, frame, shed 26′ x 32′; one brick chimney, 6" diameter x 150′ high; one Artesian well.

Equipment

Two Allis 28" x 60" Corliss engines; three Babcock & Wilcox water tube, oil burning boilers (208 h.p. each); one Westinghouse 35 KW lighting set; two sets of cable winding machinery.

The June,1889, issue of American Railway Journal reported the opening of the E. 7th St. cable line as June 15, 1889, and listed the powerhouse equipment as two Reynolds-Corliss engines of 450 h.p. each, three Babcock & Wilcox boilers, and one Robert Poole cable driving engine.

St. Paul City Railway
Electrification of the Horsecar System

Pages 35 and 37

The Drum & Co. valuation report provides the following track mileage figures as to the complete horsecar system. (Compare with our table on Page 17 of this Supplement.)

Abandoned due to development of the system	9.690 miles
Superseded by cablecar lines	6.571 miles
Superseded by electric lines	32.765 miles
Total	49.026 miles

Horsecar Track Abandoned at Electrification

Year	On	From	To	
1890	Payne Ave.	York Ave.	Sims St.	(1)
1890	Sims St.	Payne Ave.	Greenbrier St.	(1)
1890	Fairfield Ave.	Robert St.	Dakota Ave.	

1890	13th St.	Jackson St.	Mississippi St.	
1891	Locust St.	E. 7th St.	Lafayette Ave.	(2)
1891	Acker St.	Mississippi St.	Cortland St.	(3)
1892	Kent St.	Rondo Ave.	University Ave.	

(1) Replaced by newly constructed electrified double track on York Ave. from Payne Ave. to Greenbrier St., and on Green brier from York Ave. to Sims St. (Sims St. was one block north of York Ave.)
(2) Replaced by newly constructed electrified double track on 10th St. from Mississippi St. to Lafayette Ave., and on Broadway from E. 7th St. to 10th and Mississippi Streets.
(3) Abandoned in 1890?

Electrified Track Construction

Page 37

1890 or 1891 St. Paul

Double track built on 5th St. from Wacouta St. to Broadway, and on Broadway from 5th to 7th Streets.

Track (45 lb. T rail) on University Ave. from Victoria St. west to the city limits was located on a 25´ wide sodded boulevard. All street crossings were planked.

1891 St. Paul

Single track on State St. and S. Robert St. from Concord St. to Annapolis St. was completed as a new electric line.

Track on Rice St. from Maryland Ave. to South St. was NOT built until 1909.

1892 St. Paul

Track was built from Front and Dale Streets on Front St., Chatsworth St. and Van Slyke Ave. to Como Park. A loop was built in the Park near the end of Van Slyke Ave., described in a directory as bounded by Churchill, Lexington, and Langford (Como) Avenues. This loop was relocated during 1904.

According to the corporate minutes track on Jackson St. was double from 5th to 13th Sts., and single from 13th to Maryland Ave. The minutes also mention double track built on Snelling Ave. from Minnehaha Ave. to University Ave., and single track on Prior Ave. from St. Anthony Ave. to University Ave. which we listed as built during 1893.

Page 38

Frank Trumbull's 1893 inspection reported that iron center poles with brackets (later replaced with side poles and span wire) were used in St. Paul on University Ave. from Grotto St. to the city limits, and on Grand Ave. from Snelling Ave. to Victoria St.

Page 39

1894 St. Paul

Stryker Ave. was all single track, presumably using a crossover on Winifred St. Earl St. was single track from Mound St. to Pacific St. with a loop at Indian Mounds Park; the remainder was double track.

Page 41

1898 St. Paul

Track was originally built on 3rd St. from Robert St. to Wacouta St., and on Wacouta from 3rd to 5th Sts. In 1904 the track was relocated to Sibley St. between 3rd and 5th Sts.

Track was abandoned on Edgerton and Reaney Sts. and relocated to Minnehaha and Payne Aves.

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1901 St. Paul

Double track was built on Maryland Ave. from Greenbrier St. to Payne Ave. This track was abandoned in 1905.

See 1904: the Cedar St. loop was mentioned on page 182 as being in use during 1901.

1902 Entire System

Of the 251 total miles, 130 were of span wire construction and 121 of center pole construction.

1903 St. Paul

Rice St. from Hatch St. to Maryland Ave. was also single track. Records do not indicate when the second track was added. Our guess is either 1906 or 1909 when track was extended northward.

Records are also unclear as to when second track was added on Jackson St. north of 13th St. Track construction projects on this portion of the line took place in 1903, 1906 and 1911.

The trust agreement also indicated that these portions were single track: (1) Grand Ave. from Hamline to Cretin; (2) Snelling Ave. from Taylor to Minnehaha; (3) Minnehaha Ave. from Snelling to Hamline. However another company document dated January 1, 1901, stated that (2) and (3) were double track.

1904 Minneapolis

Costs for adding second track on Central Ave. from 29th to 40th Aves. N.E. were recorded on the books during 1905 only. Thus it appears the actual work was done during 1905.

1904 St. Paul

The Drum & Co. valuation reported that from 1889 through 1904 track removed and replaced before expiration of its useful life totaled 30.176 miles.

The Fairgrounds loops and storage tracks were built. Second track was added on W. 7th St. from Parnell Ave. to the Fort Snelling bridge. Track on Cedar St. and 8th St. was rebuilt March through August, 1906.

As of December 31, 1901, it was reported that the company leased and operated a park at Lake Como. Real estate was purchased in the Park during February, 1902. During 1904 a new loop track, bridge, concrete platform and walks, and a foot-bridge were built. A waiting station, south of the right-of-way, was completed in 1905, and a pavilion, north of the right-of-way, in 1906, all by the City of St. Paul.

1905 Minneapolis

The construction cost records list two girder bridges purchased for the Fort Snelling extension. The loop at Fort Snelling was located on the right-of-way north of the Drill Hall (which later became the Theater), near what later became the junction of highways 55 and 100.

The downtown track listed was all built during 1905 EXCEPT that on 3rd St. from Hennepin Ave. to 4th Ave. So. which had been built in 1889 and electrified during 1890-1891.

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1906 Minneapolis-St. Paul

The Lake St. bridge was reconstructed, reinforced to carry the weight of streetcars.

1906 St. Paul

Track was built at (1) Langford Ave. (Como Ave.) gravel pit opposite the Fairgrounds loops; (2) Minnesota Transfer Ry. connection at Prior and University Aves.; (3) stone crusher siding at W. 7th and Victoria Sts.

Second track added on (1) Smith Ave. from King St. to Annapolis St. (1907 records mention reconstruction of a wye at Smith Ave. and Sydney St.); (2) Earl St. from Hastings Ave. to Mound St.

1907 Minneapolis

Track was relocated along Minnehaha Ave. between 48th and 52nd Sts. to side-of-the-road right-of-way.

1907 St. Paul

Costs incurred from 1906 to 1910 for construction of the Selby Tunnel amounted to $381,732. Measurements were: 1479 ft. long over the walls, 920 ft. long portal to portal, 23 ft. wide, and 15 ft. 9 in. high at the center.

The crossover on Winifred St. was removed and replaced with a turnout and crossing into second track for a short distance south of Winifred St. on Stryker Ave.

1907 U. S. Census

As of December 31, 1907, the 363.87 miles of track comprised 312.30 miles of span wire construction, 47.87 miles of center pole construction, and 3.70 miles of side bracket construction. The center pole replacement program was undertaken in two projects: one during 1905 (completed 1906) and the other in 1909 (completed 1910).

Page 54

1909 Minneapolis

The Fort Snelling loop was removed and double track extended over right-of-way to the new bridge on W. 7th St.

A wye was built at W. Lake St. and Girard Ave.

Experimental work on concrete overhead poles was undertaken.

1909 St. Paul

Second track added on State St. from Concord St. to Lucy St. Double track built on Rice St. from Maryland Ave. to South St. (Ivy Ave.). The Fairgrounds loops and storage tracks were re-arranged and a wye installed.

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1911 St. Paul

Trackwork for the Broadway loop was begun and completed in 1910.

1912 Minneapolis

Track was built into the General Contracting Co.'s stone quarry off Johnson St. N.E. and a crossover installed on Johnson St. near the branch-off.

1913 Minneapolis

The construction journal records removal of a spur track at 17th Ave. N.E. and Central Ave. When this track was built was not recorded. A single track spur, 434 L.F., was built off Johnson St. N.E. to a dumping ground at the Minnesota Crushed Stone Co. quarry.

A wye was built at 29th St. and Holmes Ave.

1913 St. Paul

Second track extended 1800 L.F. on Stryker Ave. to Augusta St.

Existing track at the Langford Ave. (Como Ave.) gravel pit extended 500 L.F. for additional passenger car storage during the State Fair.

1914 Minneapolis

Track from Lake St. and 36th Ave. S. to 42nd Ave. S. and 41st St. was NOT built until 1921.

Side poles replaced center bracket poles from Chowen Ave. to the curve off Minnetonka Blvd. on the St. Louis Park line.

A new wye and storage track was built at 5th St. N. and 5th Ave. N.. A loop replaced the wye at 42nd Ave. N. and Washington Ave. N.

1914 St. Paul

A siding was built off the wye on Duluth Ave. at E. 7th St. Station.

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1915 Minneapolis

A loop and storage track was completed in April at 53rd St. on

the Fort Snelling right-of-way. The crossing over the C.M. & St.P. Ry., previously single track, was now made double track.

1917-1918 St. Paul

Second track added on St. Clair St. from Crow St. to Oxford St.; at the same time new double track was built from Oxford St. to Fairview Ave. Second track extended 600 L.F. on Concord St.

See page 60 in the book under 1927 St. Paul: new track on Locust St. from 7th to 10th Sts., replacing track abandoned on 10th St. from Broadway to Locust St., was actually built during 1917-18.

1919 Minneapolis

A new crossover was installed on 1st Ave. N. between 6th and 7th Sts. The 1-1-1916 track map showed a crossover on 6th St. near 1st Ave. N.; this was removed in 1920. The wye at 29th Ave. N.E. and Central Ave. was relocated to 31st Ave. N.E.

1919 St. Paul

Double track on Concord St. ended at the C.G.W. Ry. Klondike Spur crossing. Second track was extended over the crossing to 6th St. and a wye built at 6th St. (South St. Paul).

1920 Minneapolis

Second track extended 350 L.F. on Nicollet Ave. from 50th to 51st Sts. Crossover removed on 2nd St. N.E. near E. Hennepin Ave. The construction journal indicates second track was added on 11th St. from Harmon Place to Hawthorne Ave.

1920 St. Paul

Wye curve added at Randolph and Snelling Aves.; second track extended on Randolph a short distance west of Snelling Ave. and a wye built at Randolph and Cleveland Aves.

Second track added on 4th St. from Rosabel to Broadway, and double track built on Broadway from 4th to 5th Sts. At 5th and Wabasha the second track (northbound) was extended through the curves across 5th St.

Track mileage of the South St. Paul line as of 1-1-1920:

main track (*)	7.657 miles
Malden St. yard (Spring Park loop)	.594 miles
miscellaneous track	.036 miles
total track	8.287 miles

(*) This included special track at the South St. Paul sand pit: 172.6 L.F. on Concord St. and 241.4 L.F. in the sand pit. Buildings in the pit included a frame sand hopper and

conveyor building, frame tool house, and frame comfort station.
The South Park right-of-way began just south of Butler Ave. and ended just north of Central Ave. Second track was added on Concord St. from 6th St. to Richmond St.

1921 Minneapolis

See 1914 corrections for track built in 1921 from 36th Ave. S. and Lake St. to 42nd Ave. S. and 41st St.

Wye curve installed at W. Broadway and Penn Ave. N.; second track extended 150 L.F. on W. Broadway from Penn Ave.

Second track extended on Nicollet Ave. from 50th to 52nd Sts.; crossover installed at 52nd St. and the wye their rebuilt.

Curves were removed at 5th St. and Marquette Ave.

Page 58

1922 St. Paul

Wye built at Selby and Nina Aves.

1922 Minneapolis

Fern Siding, 100 L.F., was installed on the St. Louis Park line. A telephone booth for dispatching purposes was placed here.

1922 Overhead Trolley Wire

Twin City fittings (hangers and ears) were also replaced at the same time with Ohio Brass Co. fittings.

1923 Minneapolis

A wye was built on the vacant lot adjacent to the Girard Substation; crossovers were installed on Girard Ave., and Lake St. near Hennepin Ave.; all completed by 1924.

1923 St. Paul

The crossover on Robert St. between 5th and 6th Sts. was removed.

Single track was built on Cleveland Ave. and Ford Parkway from Randolph Ave. to Mt. Curve Ave., with a loop at Mt. Curve, completed January 21, 1924.

1924 Minneapolis

A double track wye replaced the single track wye at Oak and

Beacon Sts.

Second track was added on Nicollet Ave. from 52nd St. to Diamond Lake Road. The crossover at 52nd St. was removed but the wye remained until 1926. The wye at the M.N. & S. Ry. 54th St. Terminal was removed and new wyes installed at 48th St. and at Diamond Lake Rd.

1924 St. Paul

The single track wye at S. Robert and Annapolis Sts. was replaced with a double track wye and turnout. Pascal Ave. was all double track.

Abandoned wyes were removed: Como and Hamline Aves. (800 L.F.); Forest St. and Lake Como-Phalen Ave. (700 L.F.)

1925 Minneapolis

The siding on 45th Ave. N. was 275 L.F. long. The Lake Nokomis loop comprised 474.8 L.F. of track.

The wye at 5th St.N. and 5th Ave. N. was relocated to private property adjacent to 5th Ave. N. and the siding built.

1925 St. Paul

Single track on Cleveland Ave. and Ford Parkway was removed and replaced with new double track. A loop and storage track were built on Ford Motor Co. property on the south side of Ford Parkway.

1927 St. Paul

See corrections listed under 1917-18. Relocation of track from 8th St. to 9th St. was not undertaken until 1931 and 1932.

Page 60

1928 St. Paul

The Village of Inver Grove acquired this St. Paul Southern Electric Ry. track and leased it to the M. & St. P. Suburban R.R.

The South St. Paul sand pit was sold to the South St. Paul Cement Block Mfg. Co.

1930 Minneapolis

The loop at 53rd St. and Hiawatha Ave. off the Fort Snelling right-of-way was also abandoned.

1930 St. Paul

The stone quarry track at W. 7th and Victoria Sts. was removed.

1931 St. Paul

Single track was built on Rosabel St. from 4th to 5th Sts.

The crossover on Earl St. near Burns Ave. was installed and the wye built at Burns Ave. and English St.

1931 Construction Details

Rail in use consisted of 6" 100 and 102 lb. T rail, 7" and 7 1/4" 102 lb. T rail, and 114 lb. girder guard rail for curves.

As of 1944 rail throughout the entire system was chiefly 80, 93 and 102 lb. T rail on wood ties with granite block paving.

In 1947 rail used was 6 1/2" 100 and 110 lb. T rail, and 7" 108 lb. guard rail.

Page 62

1934 St. Paul

Rail and special work of the Fairground loops and storage tracks north of Judson St. were removed and re-used in reconstruction of shortened loops and storage tracks all south of Judson St.

1935 Minneapolis

A wye was installed at 47th Ave. S. and 54th St.

1935 St. Paul

The wye at W. 7th and Tuscarora Sts. was removed.

An underpass replaced the viaduct over the Minnesota Transfer Ry. on University Ave. Refer to the track map on page 48 in the book: the trackage at University and Prior Aves. indicated by the dotted lines was removed together with the connecting tracks to the Minnesota Transfer Ry.

1937 St. Paul

The wye at Smith Ave. and Annapolis St. was rebuilt to the configuration shown on the map on page 49 in the book.

1940 St. Paul

The 4th-Rosabel-3rd-Broadway loop was abandoned except for the

wye at 4th and Rosabel.

The wye at Concord St. and Marie Ave. was removed.

The southbound turnout north of 7th St. on Robert St. and two single track crossings on 7th St. were removed during 1939-40.

1941 Minneapolis

The wye at 11th St. and Hawthorne Ave. was removed as was the side track off the Glenwood Park wye.

1942 Minneapolis

A wye was installed at 51st St. and France Ave. S.

1944 Entire System

The inventory of overhead side poles consisted of 14,350 iron poles and 4,665 wood poles for a total of 19,015.

TCRT-manufactured iron overhead poles were fairly standardized. Three-section poles predominated, with three sizes produced: 4"-5"-6", 5"-6"-7", and 6"-7"-8". Some four-section poles were produced, all 4"-5"-6"-7". Lengths of the three-section poles were 23', 27', 28', 30' and 32' while the four-section poles were all 30'.

Page 63

1946 Minneapolis

A wye was installed at 36th and France Aves. N.

1946-1947 Minneapolis

Second track added on France Ave. S. from 49th to 51st Sts. The wye at 50th St. was removed and the wye at 51st St. rebuilt.

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1951 St. Paul

J. L. Shiely Company purchased a portion of the Como Gravel Pit property. The remainder was sold in 1954 to the Mid-Continent Development & Construction Co.

<u>Inter-Campus Line Track Mileage</u>

Refer to Track Map on Page 48 in the book.

SPCR connection at Como Ave. and Eustis St.	0+00	
End of double track	3+79.85	.072 miles
Switch to M.T. Ry. connection	11+97.6	.227 miles
Cleveland Ave. (city limits)	50+91.3	.964 miles
Farm Campus siding switch (Siding was 375 L.F. long)	68+33.8	1.294 miles
Farm Campus loop: north switch	74+95.6	1.4196 miles
Farm Campus loop: south switch	78+58.3	1.488 miles
Powerhouse: end of track	82+44.91	1.5615 miles

The Minnesota Transfer Ry. connection was measured working backward from the passenger line switch.

Railroad connection	0+63.47	
Siding: west switch	2+25	
Siding: east switch	6+75	
Passenger line switch	11+97.6	.215 miles

Minneapolis, Lyndale & Minnetonka Ry.

Page 67

The first Board of Directors of The Lyndale Railway comprised Col. William McCrory, President; Robert S. Innes, Secretary; and Judson N. Cross (Minneapolis lawyer), Treasurer.

The corporate name was never changed to Minneapolis, Lyndale & Lake Calhoun Ry. This lettering only appeared on the equipment.

A judge's decision in a lawsuit won by the company in 1880 contained some interesting operating information. One steam motor with one trailer comprised each train during the winter months. One steam motor with two or three trailers were used on each train during summer traffic to Lake Calhoun. Eames vacuum brakes were used. Anthracite coal was the fuel with the supply maintained at the Lake Calhoun roundhouse. Each locomotive was refueled each trip.

The extension to Lake Harriet opened July 4, 1880. A small depot was erected there which also served refreshments. A dancing platform and sheltered picnic tables were soon provided. (GLT)

The steamer HATTIE was built and launched at Lake Calhoun during 1881. Patronage was good through 1887, but fell off drastically after the Lake Harriet Pavilion opened in June, 1888. The "fire at sea" took place Wednesday, September 12, 1888. (GLT)

The Minneapolis & St. Louis Ry. began surveying the line from Hopkins through Deephaven to Excelsior in 1880. Track construction was begun in 1881 and completed to Solberg's Point, Lake Minnetonka, by early July. Meanwhile, on March 12, 1881, The Lyndale Construction Co., Col. William McCrory, President, secured financing from the New York, New England, & Western Investment Co. for the extension from Lake Harriet to Excelsior. On April 1, 1881, the Lyndale Construction Co. contracted with the M. L. & M. Ry. to survey, acquire right-of-way, build the track, and purchase equipment for the extension, all to be completed by August 1, 1881. The mortgage was dated April 1, 1881, with the Farmers Loan & Trust Co., New York, as trustee.

Grading was completed July 25, 1881, and track laying was completed to within seven miles of Excelsior by August 13th. The first timetable was supposed to go into effect September 3, 1881. One daily round trip was being operated during December, 1881. The corporate minute book records a special meeting January 24, 1882, authorizing the issuance of mortgage bonds to The Lyndale Construction Co. for "road completed but not further equipped", Lake Harriet to Excelsior, 14 miles, at $8,750 per mile. (The mortgage bond agreement provision was for $10,000 per mile of new road built and equipped.) (GLT)

The Board of Directors at this time comprised McCrory, President; Dr. William B. Hawkes, Vice President; Innes; Cross; and Albert L. Scott, Treasurer. Hawkes and Scott were promiment Columbus, Ohio, businessmen; McCrory also had come from Columbus.

A newspaper reported that the beginning of service to Excelsior had been delayed a year because of financial problems. Excursion specials were operated during June and July, 1882, including the June 15th Westminster Presbyterian Church Sunday School Picnic. "Motor Line Timecard #1" went into effect July 16, 1882. Trains left Minneapolis for Excelsior at 8:45 a.m., 9:50 a.m., 1:30 p.m., 5:15 p.m., and 9:00 p.m. Trains left Excelsior for Minneapolis at 7:30 a.m., 10:30 a.m., 11:50 a.m., 4:30 p.m., and 7:05 p.m. (GLT)

Seven passenger trailers were purchased under a conditional sales contract March 20, 1882. This transaction was re-financed March 20, 1884, through a lease with option to purchase.

The judge's decision in another lawsuit won by the company in 1883 also contained operating information as of 1882. A train usually consisted of one steam motor with two to four trailers; occasionally more than four trailers were required. Average operating speeds were three to four m.p.h. in Minneapolis, six m.p.h. to Lake Calhoun, 15 m.p.h. and greater from Lake Calhoun to Excelsior. Between Lake Calhoun and Excelsior a steam

locomotive was used on some trains, and some were pulled by the steam motors. Cordwood and miscellaneous freight were hauled between Minneapolis and Excelsior.

Real estate records indicate that the property at 31st St. and Nicollet Ave. was not purchased until 1886. The complete record for the purchase of that property is as follows.
June, 1886: north one-half.
June, 1889: most of the south one-half: lots 1-4 and 14-17. Lots 5-13 were recorded during July and October, 1892, in the name of the Minneapolis St. Ry.
March, 1906: a strip in the north one-half adjacent on the south to the center line of 31st St., in the name of the Minneapolis St. Ry.

The Minneapolis, Minnehaha & Fort Snelling Ry. was incorporated in June, 1884, by Col. William McCrory, President; Judson N. Cross; Samuel E. Neiler (Cashier of Northwestern National Bank); Frank H. Carleton and T. J. Janney. (S. E. Neiler was elected Treasurer of the M. L. & M. Ry. in August, 1884.) On November 28, 1884, the M. L. & M. Ry. purchased the M. M. & F. S. Ry. from 31st St. and Nicollet Ave. to Minnehaha Falls in exchange for $50,000 in first mortgage bonds (five miles @ $10,000) and $75,000 in capital stock (five miles @ $15,000). The capital stock transfers were effected February 28, 1885, with the end result showing Col. McCrory holding 2,816 2/3 shares, the N. Y., N.E. & W. Investment Co. holding 1,033 1/3 shares, for a total of 3,850 shares.

Since the inception of The Motor Line there was continuous and bitter opposition on the part of many businessmen and residents along the line within Minneapolis to the use of steam motors as motive power. The city council passed an ordinance March 22, 1882, prohibiting the use of steam motive power on 1st St. and 1st Ave. S. after October 1, 1882. This deadline was later extended to June 1, 1883.

Apparently the M. L. & M. Ry. defaulted on the mortgage bond interest payments due after October, 1884. William D. Washburn of the Minneapolis & St. Louis Ry. and "Soo Line", subsequently purchased the bonds and then resold them to a "syndicate" formed by Jacob K. Sidle, President of the First National Bank. The resale agreement contained a stipulation, with penalty provisions, that steam motive power could not be used north of 6th St. after November 1, 1885, and north of 19th St. after November 1, 1886. (GLT)

Changes in stock ownership, officers and directors took place during June and July, 1885. The end result, as of September 29, 1885, was:

Sanford S. Small	President	Director	5 shares
Charles A. Pillsbury	Vice-President	Director	3,830 shares

Jacob K. Sidle	Treasurer	Director	5 shares
Edmund H. Steele		Director	5 shares
Peter S. Mackay	Secretay	Director	5 shares
			3,850 shares

The reference to adding second track to 37th St. and Nicollet Ave. is incorrect. This subject will be addressed in the following paragraphs.

Page 72

Under pressure to meet terms of the Washburn agreement, the success of Charles J. Van Depoele's electric railway at the Toronto Industrial Exposition (Canada) in September, 1885, caused the new management to enter into an electrification contract with the Van Depoele Electric Manufacturing Co.. Pullman's Palace Car Co. order #1161 dated October 15, 1885, covered two car trucks (sic) shipped to Van Depoele's company in Minneapolis. During November the locomotive carbody was under construction at the M. L. & M. Ry. Lake Calhoun roundhouse.

The original plan was to double track and electrify the line on 1st Ave. S. from Washington Ave. to 24th St. During November work was underway between 10th St. and 24th St. The first trial operation, unsuccessful, took place December 28, 1885, between Washington Ave. and 12th St. Other experimental runs, all unsuccessful, occurred during January and February, 1886. As Washburn insisted on his contract being honored, the company began hauling the trailers with horses between Bridge Square and 6th St. in February. (GLT)

Meanwhile Van Depoele was busy elsewhere in the United States installing electric railways. Not counting Minneapolis, nine electric railway installations began operating during 1886, six of which were Van Depoele systems.

In May, 1886, Van Depoele made another attempt to operate the electric locomotive in Minneapolis. Modifications to the locomotive were made; runs between 2nd St. and 6th St. proved successful so regular operation between Washington Ave. and 6th St. began May 23rd. The July, 1886, issue of the Street Railway Journal description of operations and engraving of the train pertain to this period of successful operation. Electric operation lasted four months. The September 24, 1886, newspaper reported the locomotive had been withdrawn from service because of a broken axle sprocket. The reasons for failure were those common to the Van Depoele system: metal motor brushes sparked destructively, arcing and sputtering; the chain drive was noisy and broke often; dirt and ice lodged in the sprockets; and the wood body could not stand the weight and stress. (GLT)
(It should be noted that Van Depoele's installation in

Montgomery, Alabama, opened in early 1886 and completed in 1887 was the first completely electrified street railway system in the world . It was successful enough to achieve permanent operation, something else no other system had yet been able to do.)

Page 73

During March, 1886, the M.L. & M. Ry. conducted test runs with an experimental standard gauge soda motor on temporary track installed at Lake Calhoun. The limited testing proved successful, and desperate for a solution to the Washburn stipulation, four soda motors were ordered for June 1st delivery. A German engineer designed the production models at Baldwin Locomotive Works, but construction was not completed until September. The first soda motor went into operation about October 1st. Problems were encountered immediately. What was experimentally successful failed in continuous operation. Back pressure from steam re-circulation reduced the actual operating pressure, and lye spilled out with the exhaust steam killing the tree foliage on both sides of the street. The soda motors were quickly withdrawn from service. (GLT)

The city council decided IT could not be bound by the Washburn stipulations and passed an ordinance October 28, 1886, permitting the use of steam motive power south of Washington Ave. for three additional years, until November 1, 1889. (GLT)

On November 1, 1886, Fred C. Pillsbury replaced Sanford S. Small as President, and C. H. Benedict replaced Charles A. Pillsbury as Vice President.

On December 27, 1886, the first passenger train of the St. Paul, Minneapolis & Manitoba Ry. operated over the rebuilt M.L. & M. Ry. track bound for Hutchinson.

Poor's Manual reported that the M.L. & M. Ry. had been sold under foreclosure March 10, 1887. The Minneapolis St. Ry. lease took effect April 1, 1887. The stock ownership as of April 15th was:

John H. Randall	3,349 shares
A. Z. Levering	481 shares
J. K. Sidle	5 shares
P. S. Mackay	5 shares
F. C. Pillsbury	5 shares
C. H. Benedict (subsequently replaced by E. H. Center)	5 shares
	3,850 shares

As of June 30, 1886, the main line from Minneapolis to Excelsior was reported as 20 miles long of which 4.5 miles were double track. Seven additional miles of track were reported built

during the year ended June 30, 1888. (GLT) Apparently MSR added the second track which brought the line to its full extent of double track.

As the Selby Ave. cable line in St. Paul neared completion in late 1887, the Minneapolis city council passed an ordinance effective November 1, 1887, directing the M.L.& M. Ry. to find some motive power other than steam. A cable line was to be installed if no other alternative was available. Fifty percent of the cable material was required to be purchased by November 1, 1888.

After the 1887 takeover of The Motor Line by MSR, Thomas Lowry announced in early 1888 plans for a grand pavilion, summer garden, dance hall and theater to be built on his property at Lake Harriet. This property was Lots 1-18, Block 1, First Division of Remington Park, which was adjacent to the right-of-way on the east at 42nd St., extending northward along the right-of-way and Minneapolis Park Board property. This property was deeded to the M. L. & M. Ry. by Thomas and Beatrice Lowry in January, 1889. The old depot and refreshment stand were demolished and the new pavilion so constructed that visitors would pass through the pavilion from the tracks to the lake. Located on 350 feet of curved lakeside frontage, the pavilion contained a grand reception room and auditorium for 1,500 persons plus a refreshement room seating 500 persons. This pavilion was opened June 30, 1888. (The Lyndale Pavilion, formerly King's Pavilion, at Lake Calhoun was destroyed by fire about 1888.) The Lake Harriet Pavilion was destroyed by fire June 22, 1891.

Estimated total route mileage of the M. L. & M. Ry.	
Bridge Square	0.00 miles
1st Ave. S. and Washington Ave.	0.23
1st Ave. S. and 6th St.	0.55
1st Ave. S. and 13th St.	1.10
Nicollet Ave. and 24th St.	2.12
Nicollet Ave. and 31st St.	2.89
Right-of-way at 31st and Irving Ave.	4.04
Lake Calhoun	4.68
Lake Harriet	5.51
Minnehaha (Emma Abbott Park)	7.91
Hopkins (Junction City)	10.77
Excelsior	19.64
31st and Nicollet to Minnehaha Falls	4.95
Nicollet Ave.-37th St. to 50th St.	1.61
Total	26.20

North Side St. Ry.

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The correct name of one incorporator was John M. Moan (not Moon). Presumably he was connected with the carbuilding firm of Robinson & Moan, later Northern Car Co.

Offices of the company were located at 324 Kasota Building, Minneapolis.

A survey of the property dated November 20, 1897, reported that track consisted of 35 Lb. T rail in fair condition but poor in surface; side overhead poles with round trolley wire were used.

Apparently there was NO connection with MSR. When the property was acquired by the M. & St.P. Suburban Ry. in November, 1906, the latter had to use the cars and carhouse of NSSR until a track connection could be made. One switch was installed during 1907 at 32nd and Penn Aves. N.

Minneapolis Land & Investment Co.

Pages 76-77

MSR built the line from 29th St. and Hennepin Ave., Minneapolis, to Broadway Ave., St. Louis Park, furnishing much of the material. MSR also furnished the power and operated the line from December 21, 1892, until August 30, 1893. Two 18 ft. single truck closed motor cars were provided, each with a motorman and conductor. One car operated from Hennepin and Washington Aves. to the crossing of the Minneapolis & St. Louis Ry./Chicago, Milwaukee & St. Paul Ry.; the other car operated from the opposite side of the crossing to the business center of St. Louis Park. Hourly service was given from 6:00 a.m. to 8:00 p.m. (15 daily round trips). The two cars made connections at the railroad crossing. This was done until the bridge over the railroad tracks could be completed.

Hennepin & Washington to 29th & Hennepin	2.88 miles
29th & Hennepin to the railroad crossing	1.14 miles
Railroad crossing to St. Louis Park	2.01 miles
Total line length	6.03 miles

MSR invoiced M.L. & I. Co. July 31, 1893, for labor furnished during July unloading TWO St. Louis Park cars. Labor and materials were furnished during July and August for the TWO new cars. A newspaper article dated in November, 1906, mentioned "the rickety #1 and #2 cars". No other reference has been found involving a possible third car.

New operating rules with MSR went into effect August 30, 1893,

when M.L. & I. Co. began operating its line.

The Village of West Minneapolis passed an ordinance September 23, 1898, covering construction and operation of the extension to Hopkins. This ordinance was accepted by the company November 15, 1898. The location of the line as specified in this ordinance is shown on one of the maps included with this Supplement. We presume this location is correct as the directories cited in the book contained vague descriptions, and a map in the TCRT 1901 Annual Report was also ambiguous. This location also avoided steam railroad crossings.

The Bill of Sale to MSR in 1906 specifically excluded the carhouse at St. Louis Park as well as three waiting stations: 29th & Hennepin, St. Louis Park, and Hopkins.

St. Paul & White Bear R.R.

Pages 77 to 79

Original documents included in the donated records indicate that the North St. Paul R.R. Co. was built to 4´ 8 1/2" gauge. An agreement with the Wisconsin Central Ry. dated May 1, 1890, allowed a single track standard gauge crossing of that railway´s main line at Charles St., North St. Paul. A second agreement with the W.C. Ry. dated May 27, 1891, allowed two single track standard gauge crossings of that railway´s spur tracks in North St. Paul. Thus the SPCR track built in June, 1890, on E. 7th St. from Duluth Ave. to Hazel Ave. (see page 37 in the book) was also built to 4´ 8 1/2" gauge.

Comparisons of steam motor photographs indicate that the body of the steam motor pictured on page 78 of the book had been widened, probably to accommodate changing the gauge of the wheels. This steam motor was a "soda motor" that had been rebuilt to a conventional steam motor. Thus the C. St.P. M. & O. Ry. connection at Hazel Park was used for freight purposes since the W. C. Ry. crossing agreements cited in the foregoing paragraph involved one N. St.P. R.R. freight spur track. The revised maps in this Supplement indicate these track arrangements

A newspaper article reported that steam passenger operations began June 10, 1890.

The Wildwood Park Company sold its entire real estate holdings of 36.93 acres to the St. Paul & White Bear R.R. Co. May 20, 1892. Real estate was also acquired from the Mahtomedi Chautauqua Association September 8, 1892.

The Stillwater Division

Pages 79 to 88

1900

A steel girder bridge replaced the tunnel under the Wisconsin Central Ry. east of Wildwood.

A right-of-way map dated 1-19-1900 covering the section from the Omaha Ry. bridge to Wildwood locates the following.

Description	From	To	L.F.
C. St.P. M. & O. Ry. connection	Removed		
Maryland Siding	59+89	65+14	525
Colby Siding	130+54	136+51	597
Soo Line Siding	232+58	238+74	616
Wildwood Siding	407+60	?	
Wildwood Substation spur track	421+47		
Mahtomedi branch line switch	423+04		

The wye indicated by dotted lines on the map, Inset A, page 83 in the book, appears on this 1900 map but no right-of-way surveyors station numbers are given. The general location appears to be on the east side of Building 25 as shown on the map on page 82 in the book.

Map, Inset 13, page 81: the right-of-way station numbers are:

switch for turntable spur track	569+54
end of track	570+00

Map, Inset B, page 80: the right-of-way station number for the end of double track at Van Dyke Ave. was 74+36.

1903-1904

Additional right-of-way was purchased during 1903 in Hazel Park and 1904 in North St. Paul. During this period the relocating and rebuilding of various curves was accomplished using 5" 80 lb. T rail with rail braces. The Ames Ave. wye may have been built during 1903 on land purchased from W. L. Ames.

1906

Bock St. Siding was installed during May.

1907

Maryland and Pullman Sidings were reconstructed during May. The crossover at Maryland Sidings was 167.8 L.F. $783 was expended on the Wildwood loading platform.

1908

Grant Siding, 390 L.F., was installed during November.

1909

Track changes were made and the loading platform rebuilt at Wildwood.

Page 82, Wildwood Enlargment: from a more detailed track map:

Description	Book Map	R/W Map
Wildwood Siding switch	470+25	469+97.5
Lower Wye, south switch	471+62	471+37.9
Lower Wye, north switch	474+42	474+07.6
Crossover switch	475+04	474+79.3
Crossover switch	476+38	476+21.6
Pedestrian Underpass center line		478+08.5
Wildwood Siding switch	486+27	486+03.36
Wildwood Substation spur switch	487+34	487+21.65
Mahtomedi branch line switch	487+84	487+52.9
White Bear Wye switch	3+10.5	2+43.88

Switch stand lights were changed from oil to electric.

1911

Hyacinth Ave. wye built with 141.8 L.F. of tangent track on the end of the wye.

1912

Highway completed alongside the Wildwood double track.

1914

Parrant's Siding installed during April. Lake Shore Siding on the White Bear branch line, 208 L.F., installed during April using 48 lb. relayer rail. Wildwood Upper Wye rebuilt during the Fall.

1922

Bellaire Siding on the White Bear branch line installed during October. Map, Inset 14, page 81: the right-of-way station numbers for the siding were 102+33 to 105+20.

Map, Inset B, page 83: construction of the spur track into the substation building was completed in August, 1923, for use by Overhead Dept. wire cars. 150 L.F. of the original 240 L.F. spur track was removed.

1926

Pennsylvania St. Siding, North St. Paul, was installed during September and October. All track material came from Bellaire Siding on the White Bear branch line; the switches had been

removed in 1925 and the remainder of the siding in 1926. The siding length was increased 163 L.F. during installation.

Various Dates to 1928

The Wildwood to Stillwater track was originally built with 56 lb. T rail. Substantial portions of the original 48 lb. T rail on the St. Paul to Mahtomedi track were subsequently replaced with 56 lb. T rail. Still later most of this 56 lb. rail between St. Paul and Stillwater was replaced with 5" 80 lb. T rail. Surprisingly the latter relaying projects continued almost until abandonment. The last such projects were:

Leis to the east, 1923;
Leis to Parrant's Siding (all except 2.128 miles), 1928-1929 (some of the 56 lb. rail removed was re-used on the Bayport line during 1928).

5" 80 lb. T rail was installed on the Wildwood-Mahtomedi branch line during 1928.

1929

Hyacinth Ave. wye and crossover rebuilt; see map revisions included in this Supplement. Rail from Long Lake Siding was removed; the trolley wire remained intact until 1932 when it was taken down.

1932

Stillwater local lines, including the Bayport line, and the White Bear branch line were also abandoned August 10th. We had used the personal notes of a veteran TCRT official for the dates given in the book as his other notes had proven highly accurate. However the valuation records state that the Track Dept. began rail removal in Bayport August 12th, Stillwater August 24th, and White Bear August 11th. Track material from the White Bear wye was used to build the wye at Henry St., North St. Paul, completed September 9th.

1938

727 L.F. of spur tracks were removed south of the highway at the Wildwood Substation. The remaining 300 L.F. was removed in 1940.

1940

1199 L.F. of the outbound track of Wildwood Siding was removed and the south switch relocated to shorten the siding to approximately 407 L.F. The crossover east of Duluth Ave. on E. 7th St. was removed.

1942

Two storage tracks were removed from the Wildwood Upper Wye (Willernie) so that only the wye leg was left, 150 L.F.

1944

A 620 L.F. siding was installed at the Henry St. wye during November.

1946

The Wildwood Upper Wye leg was shortened to 100 L.F. The east leg of the Mahtomedi Wye was lengthened 10 L.F. Pennsylvania St. Siding was removed.

1948

Colby Siding was removed, the south switch having been taken up May 15, 1947. Soo Line Siding was removed during June.

The Lake Minnetonka Division

Page 89

Right-of-way from the Hopkins Viaduct to Deephaven Junction was LEASED from the Chicago, Milwaukee & St. Paul Ry.

During the 1905 construction season a work train was rented from the Great Northern Ry. consisting of locomotive 476, some flat cars and a caboose. The M. & St.P S. Ry. used one Rodgers ballast car. Ten dump cars were purchased in April, 1906. After construction was completed, all were sold, in June, 1908.

Rails were purchased in January, 1907, for the Birch Bluff extension. However right-of-way acquisition took from December, 1906, until September, 1907. Grading was started in September, 1907, and completed in November, 1907. The Birch Bluff loop was never built. Instead the Minneapolis & St. Louis Ry. Tonka Bay branch line was leased. The turntable at Tonka Bay was removed by the M. & St.L. Ry.

A spur track to the docks from the Deephaven Loop track was constructed in November, 1907. Real estate for the Tonka Bay Loop was purchased in March, 1908, and that for the Wildhurst Loop in April, 1908.

The France Ave. Loop was built in 1909. The original loop and spur track were removed and a new loop track built during 1921.

A gravel pit was located on the Fair Oaks spur track. This track was removed during 1923.

Real estate for the Hopkins Wye was purchased in October, 1917. The original wye was located in Excelsior Blvd. on the west side of 9th Ave. It was relocated to this off-street lot north of the Blvd. Hopkins Local Line track mileage as of 1-1-1926 was 2,066 L.F. or .391 miles.

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Map, Inset B: the leg of the Excelsior Dock Station Wye was 47.5 L.F. long.

Page 97

During 1926 all loading platforms on the Harriet Right-of-Way from 31st and Irving to the France Ave. Loop were extended and rebuilt to accommodate the operation of two-car trains.

The Excelsior Dock Station building was sold in January, 1925, to the F. W. Pearce Co.

All rail from the Wildhurst Loop was removed during June, 1927.

The easterly curve track of the Excelsior Dock Station Wye was removed in 1928 and the remainder of the wye in 1930.

The siding on the Harriet Right-of-Way between Upton and Xerxes Aves. was abandoned in 1931. The west end switch was normally removed each Fall and re-installed each Spring. The west end switch was not re-installed in 1931 and the east end switch removed that same year. Rail on the siding itself was not removed until 1937.

In 1937 the real estate adjoining the Excelsior Amusement Park was sold to the Fred W. Pearce Corp. In 1941 the real estate at the former Dock Station and Boat House was sold to E. B. Pearce.

The crossover and spur track at the France Ave. Loop was removed during 1939. The special work in the main line tracks at the Lake Harriet Loop, plus all trolley wire and overhead poles, were removed in January, 1939. Rail on the loop itself was not taken up until 1949.

During 1942 rail and special work of the Hopkins Gravel Pit spur track were removed.

Track Mileage

Page 99

Track in Carhouses and Yards

Minneapolis 1-1-1922

East Side Station	2.362 miles
Nicollet Station	2.759
Lake St. Station	4.537
North Side Station	2.820

St. Paul 1-1-1920

Snelling Station and Shops	10.625 miles
Duluth Ave. Station	2.533
Fairgrounds Loops and Como Gravel Pit	2.681
St. Clair and Toronto dump track	.121
7th and Victoria stone quarry track	.477
Prior and University M.T. Ry. connection	.013 miles
Total	28.928 miles

CHAPTER 3 POWER GENERATION AND DISTRIBUTION

Power Station #1 Minneapolis
Main Central Powerhouse

Pages 100,101,103

Machinery for the first experimental electric line was installed in the machine shop of O. A. Pray, proprietor of The Consolidated Minneapolis and Minnesota Iron Works, located at 1st St. and 5th Ave. S.

The two triple expansion engines were 24" x 40" x 56" x 60". The one single cylinder engine was 28" x 60", later compounded to 17" x 28" x 60".

The Drum & Co. valuation as of 1-1-1916 reported the generators as:

12	150 KW (1 for 150 arc lite dynamo)	1800 KW
5	175 KW	875 KW
1	100 KW (1 for 100 arc lite dynamo)	100 KW
2	90 KW (Bain)	180 KW
20		2955 KW

The temporary extension was made during 1902. The Allis engine was 26" x 40" x 48" and the Buckeye engine 24" x 48" x 48". The boilers were removed in May, 1904; three were installed at the new Main Steam Station in July, 1904, and four at the Snelling Shops from December, 1906, through February, 1907.

Dismantling began in 1906. Dispositions of equipment recorded in the accounting records were:

one old engine sold July, 1906;
two 175 KW generators sold to Duluth St. Ry., 1906;
one Corliss engine and several generators sold August, 1907;
one Buckeye tandem compound engine and seven B. & W. 240 h.p. boilers sold June, 1908;
two Allis engines traded to Allis-Chalmers in 1909 for air brake equipment on cars under construction.

Dismantling was completed between November, 1908, and November, 1909. The building and real estate were sold in December, 1908, to W. B. and W. G. Jordan.

Power Station #2 Minneapolis

Page 101

The Drum & Co. valuation lists ten Westinghouse 260 h.p. engines, ten 250 KW type M.P. generators, and five Stirling 287 h.p. boilers. He indicates the station ceased operating in 1892 but this must be a typographical error. 1897 seems more likely, after the Lower Dam Water Power Station was placed in operation.

Hill St. Power House St. Paul

Pages 100-101

The temporary electric plant in the St. Paul Gas Light Co. building (on Hill St., across Ontario St., opposite the Hill St. Power House) installed in 1889 consisted of one 28" x 60" Corliss engine (temporarily borrowed from the E. 7th St. Cable Power House) and two Thomson-Houston D-2 generators of 150 KW capacity each.

An additional temporary electric plant was installed in the Hill St. Power House during 1890. Equipment consisted of one 28" x 60" Corliss engine (temporarily borrowed from the Selby Ave. Cable Power House) and the two generators from the earlier temporary plant.

The Hill St. Power House was in operation from 1890 through 1904. Equipment consisted of three Reynolds triple expansion 24" x 40" x 56" x 48" Corliss engines, six Babcock & Wilcox oil burning water tube boilers of 272 h.p. each, one 200 h.p. Buckeye engine, fourteen generators of 150 KW capacity each, and one (sic) Excelsior light machine (one 150 light, one 100 light, one 50 light). The brick smokestack was 200 ft. high. $5,273 was expended on steam equipment (description not given) from December, 1901, through April, 1902.

Accounting records indicate the equipment was dismantled and removed from November, 1908, through November, 1909. Recorded

dispositions were:
two engines sold September, 1909, to Manufacturers Supply Co.;
engines and pulleys sold 1909 to North American Lead Co.;
thirteen generators sold November, 1909, to St. Paul Scrap Iron & Metal Co.
The building and real estate were sold August, 1909, to the St. Paul Gas Light Co.

Hydro-Electric Power

Pages 101-102

The three substations built during 1897 were:
#1 3rd Ave. N., Minneapolis: two 600 KW rotary converters.
#2 31st & Nicollet, Minneapolis: one 600 KW rotary converter.
#3 Hill St., St. Paul: two 600 KW rotary converters.

Substation #4 was located on the northeast corner of Dale St. and Aurora Ave., St. Paul. Lot 16 was purchased April, 1899. A building was erected and one 600 KW rotary converter installed, all during 1899.

Two additional 600 KW rotary converters were ordered from General Electric Co. in January, 1900. They were not received until March, 1901. One was installed at Substation #1 and one at Substation #4.

The three additional 700 KW A.C. alternators were installed in the LDWPS during 1898.

The LDWPS was taken out of service in 1950. All cables in the 8th Ave. S.E. tunnel to the Main Steam Station were removed.

Additions to the Original System

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A steam power house was operated in Stillwater. The original power house of the Stillwater Electric St. Ry. was acquired in 1899 in the name of Thomas Lowry. Apparently the machinery was intact and placed back in service by the M. & St.P. S. Ry. Taken out of service in 1904, the machinery was not dismantled until 1912 when the property was sold.

The Selby Ave. power house installation of 1902 was a temporary plant similar to that at 3rd Ave. N., Minneapolis. Building alterations began in June, 1902. Expenditures incurred from June, 1902, through February, 1903, were:

building alterations	$ 1,658
steam equipment (one engine, two boilers)	17,422
electric equipment (no details given)	3,793
total	22,873

Both boilers were removed May, 1904, and re-installed at the new Main Steam Station. The one engine was sold July, 1907.

Two storage battery plants, each with one chloride battery (288 cells, 1,600 amp-hour capacity), booster and switchboard, were placed in operation during 1901 and 1902. The Minneapolis plant was located in the 3rd Ave. N. Power House, installed 1901. The St. Paul plant was installed 1902 in a building purchased in 1901 on 10th St. near St. Peter St. adjacent to St. Joseph's Hospital. This was a two-story and basement stone building 99' x 150'. It was divided into three 33' x 150' sections by stone fire-walls. The equipment was moved from each plant to new locations during 1904. Minneapolis equipment went to the new 11th St. Substation and the St. Paul equipment to the new College Ave. Substation. Both storage battery plants were taken out of service in 1912 and dismantled during 1912-1913.

The 1902 U. S. Census provided this information as of 12-31-1901.

Description	Quantity	Total H.P.	Voltage	Location
Steam Engines	3	600		(1)
Steam Engines	1	525		(1)
Steam Engines	5	6000		(1)
Boilers	20	4210		
D.C. Generators	36	8000	580	
D.C. Generators	2	2000	650	(2)
A.C. Dynamos	8	8000	3450	(2)
Water Wheels	2	280		(2)
Water Wheels	10	10000		(2)
Substation Equipment	8	rotary converters		(3)
Substation Equipment	2	storage batteries		(4)

(1) Probably three each at 3rd Ave. N. and Hill St., and one each at North St. Paul, Wildwood and Stillwater.
(2) Lower Dam Water Power Station
(3) Three at 3rd Ave. N., one at 31st & Nicollet, two at Hill St., and two at Dale St.
(4) One at 3rd Ave. N. and one at 10th & St. Peter, St. Paul.

Changes Resulting from the New Main Steam Station

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Four new substations were constructed:
A 11th St. and Hennepin Ave., Minneapolis, begun 1903.
B College Ave. and Wabasha St., St. Paul, begun 1903.
C Wildwood, begun November, 1903.
D Owen St., Stillwater, begun September, 1904.
The eight existing 600 KW rotary converters were "remodeled" late 1904 to early 1905 and all moved to new locations. The four in existing Minneapolis substations went to the Lower Dam Water Power Station. The four in existing St. Paul substations went to the Stillwater Division, three to the Wildwood Substation

and one to the Stillwater (Owen St.) Substation.

Cables were removed from the old Dale St. Substation, St. Paul, during September, 1905. The property was not sold until August, 1909.

During 1903 and 1904 provision was made for temporarily installing rotary converters at the Lower Dam Water Power Station. One 1500 KW rotary converter was in use as of January, 1904, and was still in operation March, 1905. During 1905-1906 a large investment was made in reconstructing and improving power distribution at the LDWPS. This included removal of the 1500 KW rotary converter (to one of the new substations, either 11th St. or College Ave.), and permanently installing the four 600 KW rotary converters.

The steam power houses at North St. Paul and Wildwood were taken out of service in 1904 but the machinery was retained intact. In January, 1907, two boilers were sold from the North St. Paul power house; the property and building was sold April, 1908. Belting from the Wildwood power house was sold April, 1909, but the steam machinery was not dismantled until 1912.

The A.C. transmission line from the Main Steam Station to Wildwood and Stillwater was built during 1904 together with the Como, Wildwood, and Stillwater Terminal Houses. The Stillwater structure was located at the rear of the Owen St. substation building. The route of the transmission line was;

On	From	To
Broadway St.	Como Terminal House	Mpls. city limits
County Road B	Mpls. city limits	Arcade St.
Arcade St.	County Road B	County Road C
County Road C (south side)	Arcade St.	White Bear Ave.
White Bear Ave. (west side)	County Road C	County Road D
County Road D	White Bear Ave.	Pole 845 on the R/W at Long Lake
R/W overhead poles	Long Lake	Wildwood Term. House
R/W overhead poles	Wildwood Term. House	Stillwater Term. House

Improvements to the Main Steam Station

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Turbo-Generator Units

1938: #1 turbine was repaired for emergency operation.
1944-46: old units #5 and #6 were scrapped, replaced by new unit #5, a General Electric-Curtis 15,000 KW machine.
1953: two vertical units, #1 and #2, were scrapped.

Boilers

Twenty-eight boilers (200 p.s.i./500 deg. F) were in use as of 1920. Twenty-four were Babcock & Wilcox rated at 556 h.p. each and numbered 1-6, 9-20, 23-28. Eighteen had been installed during 1903 and six during 1905. Four were Babcock & Wilcox rated at 514 h.p. each, numbered 7-8, 21-22. Two had been installed during 1910 and two in 1912.

The two new boilers installed during 1932, A and B, were made by Babcock & Wilcox (460 p.s.i./735 deg. F) and replaced eight old boilers, 11-18, which were retired. The new boilers had Westinghouse fourteen-retort underfeed stokers.

Boiler C installed in 1941 was made by Combustion Engineering Co. (475 p.s.i./735 deg. F). It replaced old boilers 9-10, 19-21 which were retired.

The additional boilers equipped with natural gas burners during 1943 were 1, A and B.

New boiler D was installed during 1949-1950, made by Babcock & Wilcox (440 p.s.i./850 deg. F) which replaced ten old boilers, 2-8, 22-24 which were retired.

The five remaining low pressure boilers, 1 and 25-28, were scrapped in 1953.

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The Hennepin Island Water Power Station was electrically connected to the Main Steam Station June 23, 1908.

Substations

Pages 110-111

Substations were assigned numbers for cable identification.

1	Main Steam Station
2	Lower Dam Water Power Station
3	Hennepin Island Water Power Station
11	11th St. Substation
12	11th St. Sub. Bus
13	Lower Dam Substation
14	Lake St. Substation
15	College Ave. Substation
16	Snelling Ave. Substation
17	Snelling Transfer Bus
18	Como Terminal House
19	Wildwood Terminal House
20	Wildwood Substation
21	Stillwater Substation

22 Harriet Terminal House (built 1905)
23 Hopkins Substation
24 Fair Oaks Terminal Pole (*)
25 Excelsior Substation
26 Linwood Terminal Pole (*)
27 Big Island Substation (*)
28 32nd Ave. N. (Lowry) Substation
29 Hope St. Substation
30 Minnehaha Substation
31 University Substation
32 Girard Substation
33 Concord Substation

(*) The A.C. transmission line to Big Island Park ran two miles overhead from Fair Oaks to Linwood, then 1/2 mile by submarine cable to the substation on the island.

Substation Data

Sub Sta. No.	Years of Operation	Rotary Converters Unit No.	Capa. Ea.	Installed
11	1904-54	1-2-3	1500 KW	1904
		4	1500 KW	1905
		5	1500 KW	1912

One 100 KW motor-generator set was listed here as of 12-31-1907. The booster set moved here from 3rd Ave. N. in July, 1904, was moved to the Wildwood Substation in 1915. Rotary 2 from the Concord Substation was moved here in 1947. Machinery only was sold 1954 to Mid-Continent Development & Construction Co.

13	1904-49	1-2-3	600 KW	1905
		4	600 KW	1906

One 200 KW booster set was purchased June, 1906. The booster set mentioned in the book was moved intact to the Minnehaha Substation during April-June, 1916. Rotaries 1-2-3 were transferred to ownership of St. Anthony Falls Water Power Co.; this is why they were not included in the 1-1-1916 valuation. All three were still in operation as of 1947. All cables were removed from the substation during 1949-50.

14	1906-54	1	1500 KW	1906
		2	1500 KW	1907

A 25′ x 43′ addition was constructed during 1942-43 to house two 600 KW rotaries moved here from storage at the Hopkins Substation, originally installed 1905-06 at the Excelsior Substation. Sold complete 1954 to Mid-Continent

Development & Construction Co.

15	1903-53	1	1500 KW	1903
		2	1500 KW	1904
		3	1500 KW	1907
		4	1500 KW	1907
		5	1500 KW	1912
		6	1500 KW	By 12-1913
		one	3300 KW	1916

Rotaries 5 and 6 were moved to the Concord Substation in 1919 and 1917 respectively.

16	1906-53	1-2	1500 KW	1906
		two	3000 KW	1913

Rotaries 1 and 2 were replaced by the two new 1913 units. Two 300 KW motor generator sets were purchased, one in 1909, the other in 191?. Machinery only sold 1953 to Mid-Continent Development & Construction Co.

20	1904-38	1	600 KW	1904
		2	600 KW	1906
		3	600 KW	1914

The building measured 79′ x 131′ situated on 3.167 acres of land. Construction journal entries included:

11-1906 moved and installed rotaries.

5-1909 moved one 600 KW rotary to Stillwater Substation.

8-1913 stairway built at the Wildwood Terminal House because construction of the road removed the surrounding hill.

12-1913 expended $13,654 on the building and $13,754 on electrical equipment. No details provided.

3-1914 moved one 600 KW rotary here from the Lower Dam Substation.

2-1915 moved one booster set here from 11th St. Substation.

1933 moved the foregoing booster set to Hope St. Substation. Booster cable removed between Henry St. and Wildwood re-installed between Duluth Ave. and Henry St. Salvaged overhead feeder cable from the Deephaven line installed between Wildwood and Mahtomedi.

21	1904-32	1	600 KW	1904
		2	600 KW	1909

An extension to the building was constructed May-June, 1909, to accommodate the rotary moved from Wildwood.

23	1905-43	1-2	600 KW	1905
		3	600 KW	1906

Building sold 1946 to Ralph Stark. Feeder cable between France Ave. and Hopkins removed 1947.

25	1905-32	1-2	600 KW	1905
		3	600 KW	1906

Electricity was furnished to Excelsior Amusement Park from 1925 to 1932. The three rotaries were moved to storage at Hopkins Substation 1932. The building was demolished 1933. The six rotaries from substations 23 and 25 were subsequently relocated: two from 23 to Lake St. 1942, two (one each from 23 and 25) to Minnehaha 1943, one (Excelsior 2) sold for scrap 1946, and one from 25 to College Ave. for parts.

28	1908-53	1	1500 KW	1908
		2	1500 KW	1910

Machinery sold to Mid-Continent Development & Construction Co.; building sold to Northern States Power Co.

29	1909-52	1	1500 KW	1909
		2	1500 KW	1910

Construction records indicate that rotary 1 was College Ave. Substation original rotary 5 moved here in May, 1909. In 1933 the booster set (Westinghouse motor and generator) from Wildwood Substation was installed here and overhead feeder cable strung from Hope St. Substation along E. 7th St. to Duluth Ave.

30	1911-53	1	1500 KW	1911
		2	1500 KW	1912

One booster set consisting of one 400 h.p. motor with two 135 KW generators from Lower Dam Substation was installed here during April-June, 1916, to provide extra capacity needed for Motor Speedway service. Two 600 KW rotaries from Excelsior and Hopkins Substations were installed 1943. Sold complete to Mid-Continent Development & Construction Co.

31	1912-54	1-2	1500 KW	1912

During 1947-48 a 25´ x 47´ building addition was constructed and one 2000 KW mercury arc rectifier installed. One 1500 KW rotary was simultaneously removed. Sold complete to Mid-Continent Development & Construction Co.

32	1913-54	1-2	1500 KW	1913

Operator´s cottage completed 1913. Machinery sold to Mid-Continent Development & Construction Co. Building sold to Northern States Power Co.

33	1917-53	1	1500 KW	1917 (College Ave. 6)
		2	1500 KW	1919 (College Ave. 5)

Automatic controls installed 1917. In 1920 a shed was built to house the booster set from College Ave. Substation. During 1947 rotary 2 with three transformers and reactances was moved to 11th St. Substation.

Northern States Power Co. had some years previously acquired the St. Anthony Falls Water Power Co. and with it the Lower Dam and Hennepin Island Water Power Stations. In 1954 NSP acquired the Main Steam Station complete, the Lowry and Girard Substation buildings, and several miles of underground conduit. In subsequent years NSP purchased additional underground conduits and manholes.

NSP converted the remaining boilers in the Main Steam Station from coal to natural gas and used the plant as a "peak power" facility until 1974. Meanwhile the University of Minnesota's central power plant, about 3,000 feet down river, was becoming expensive to run as oil prices increased, and overburdened as the campus expanded. The U of M was looking for a way to switch from the old central plant, fired by gas and oil, and a way to generate more steam when it was learned that NSP was willing to sell the Main Steam Station. The U of M undertook feasibility studies to determine if the boilers could be economically converted to burning coal. The study proved positive so NSP sold the plant to the U of M for $500,000 in 1977. Boilers A, B C and D were all in place; three were usable.

Crews quickly moved into the plant and began stripping the old electrical and plumbing systems, which eventually netted the U of M about $30,000. St. Mary's and Fairview Hospitals, and Augsburg College asked to be included in the project; steam pipes were laid across the Washington Ave. bridge and nearby railroad bridge linking the three institutions to the plant. The plant was scheduled to be in operation in late 1981 but state budget problems caused delays.

Of the $34.5 million it cost to rebuild the plant, about $22 million was appropriated by the legislature, $2 million from the U of M's general operations fund, $8.7 million from bank loans, and $1.7 million from the Department of Energy for installation of a computer system to control and monitor the plant.

The first of the two refurbished boilers was fired in 1983 for testing. A generator installed as part of the Dept. of Energy test program produces electricity which NSP purchases. The plant has since been placed in full operation and is the key plant, running full time producing 240,000 lbs. of steam per hour to run heating and air-conditioning equipment. The old U of M central plant has been partially converted to burn coal and is used only when demand for steam is high.

CHAPTER 4 CARHOUSE, SHOP AND OFFICE BUILDINGS

Minneapolis St. Ry. Horsecar Barns

Pages 112-114 and 121

Original Barn and Shop

The corporate minute book reveals that the first office, barn and shop was actually located on Washington Ave. N. near 3rd Ave. N. (see map) from 1875 to 1881. The office was on part of Lot 2 fronting on Washington Ave. while the barn was on part of Lot 9 fronting on 2nd St. N. This fact has never been mentioned in any other company documents, including the real estate records and valuation reports. According to the minutes it was found necessary to remove the office and vacate the barn because of "the proximity of the railroad tracks". The property was sold to William D. Washburn in August, 1881.

Subsequent Horsecar Barns

The real estate records provide additional information on the acquisition and disposition of these properties. Apparently the deeds to property acquired in the early years, particularly parcels purchased from Thomas Lowry, were not recorded until some time after the buildings were completed.

Measurements on our drawings were taken from the Trumbull 1893 inspection report and vary in some instances from those given in the Drum & Co. valuation reports. The latter's measurements are given in the following paragraphs.

Barns are listed in the order in which they were built, as listed on page 112, with one exception, the University Barn. As nearly as we can determine this was not actually built until 1881 as one of the replacements for the original barn discussed foregoing. On properties identified with an (*) all buildings had been removed prior to May 15, 1894.

4th Ave. S. Barn (*)

Real estate: recorded 5-1880 from Calvin and Harriet Goodrich and 11-1883 from Thomas and Beatrice Lowry, Calvin and Cora Goodrich. Portions were sold 9-1904, 7-1905, 10-1905 and 3-1906, with the remainder sold to the Arcade Investment Co. 11-1907.

Measurements, left to right:

Carhouse (one story, frame)	59' 5" x 196' 5" to 211' 10"
Barn (two story, frame)	69' x 136'
Barn (two story, frame)	73' 5" x 136'

Franklin Barn (*)

Real estate: recorded 6-1881 and 11-1883 from Thomas and Beatrice Lowry. Sold 11-1907 to Arcade Investment Co.

Measurements:
Waiting Room (one story, frame) 22′ 4" x 30′ 5"
All other measurements are as shown on our drawing.

Riverside Barn (*)

Real estate: recorded 4-1880 from Clinton Morrison. Sold 10-1902.

Measurements:
Carhouse is one story; measurements are as shown on our drawing.
Blacksmith Shop 14′ 6" x 24′

Broadway Barn (*)

Real estate: from Thomas and Beatrice Lowry, date not given.
Disposition and date not listed.

Measurements are as shown on our drawing.

8th Ave. S. Barn (*)

Real estate: recorded 9-1882 and 11-1883 from Thomas and Beatrice Lowry. Sold 7-1902.

Measurements, left to right:

Barn (two story, frame)	99′ 6" x 123′ 6"
Carhouse (one story, frame)	61′ 4" x 149′
attached Waiting Room (one story, frame)	24′ x 28′

University Barn (*)

Real estate: recorded 9-1882 from Thomas and Beatrice Lowry.
Sold 3 to 8-1902 in five parcels.

Measurements:
Barn is two story; measurements as shown on drawing.
Shed 20′ 6" x 24′ 6"
Shed 12′ x 16′

Monroe Barn (*)

Real estate: from Thomas and Beatrice Lowry, date not given.
5/6 sold 1895 and the remaining 1/6 sold 4-1902.

Measurements:

Barn (two story, frame)	79′ 6" to 100′ 4" x 139′ 9"
Blacksmith Shop (one story, frame)	20′ 4" x 24′ 4"
Carhouse (one story, frame)	39′ x 129′

19th Ave. N. Barn

Real estate: (1) East one-half block (a) First parcel recorded 9-1882 from Thomas and Beatrice Lowry. An old barn on the property was sold 3-1902. 1/3 sold 6-1907 and 2/3 sold 8-1909. (b) Remaining parcels recorded 5-1884 and 9-1888. Sold 7-1903 to Westminster Presbyterian Church. (2) West one-half block (a) One parcel recorded 10-1888. Sold 5-1903. (b) Remaining parcels recorded 10-1891 and 2-1893. Sold 11-1907 to Arcade Investment Co.

Measurements, left to right:

Barn (two story and basement, frame and stone)	164′ W x 165′ L
Carhouse (two story and basement, stone)	62′ 6" x 165′

Windom (Lyndale) Barn

Real estate: Lots 1-12, Block 5, recorded 11-1883. Lot 3 sold 4-1903. Fire damage was repaired 7 to 12-1906; the carhouse was remodeled into a barn for horses used on tower and track wagons. 1/3 sold 6-1907; the remaining 2/3, which included the buildings, sold 8-1911.

Measurements, left to right:

Carhouse (one story, brick)	40′ 4" x 178′ 9"
Oil House (one story, frame)	6′ 3" x 8′ 3"
Barn (two story, brick)	86′ x 150′

Minnehaha Barn

Real estate: recorded 3-1884. South 1/2 sold 7-1901 to Flour City Ornamental Iron Co. North 1/2 sold 6-1907.

Measurements, left to right:

Carhouse (two story, frame)	39′ 2" x 188′ 1"
Oil & Boiler Room (one story, brick)	13′ 8" x 40′
Barn (one story, frame)	106′ x 188′
Hospital (one story, frame)	22′ 5" x 81′ 5"

3rd Ave. N. Barn

Real estate: the corporate minutes for 11-30-1883 indicated that MSR then owned Lots 7 and 8 (see diagram of original barn property) but decided to sell them as they were not needed for operating purposes. The record lists two lots acquired 8-1885, one 6-1886, and two 4-1890. The minutes of 5-28-1886 stated that the SW 1/2 of Lot 6 was acquired through an exchange for Lots 1-4, 9-12, Block 3, Windom Addition, with Lac Stafford. (These lots were purchased 11-1883 but never used for operations.) Condemnation proceedings were initiated to acquire title to 50 feet front and rear of Lot 9 adjacent to the rear of Lots 6, 7 and 8. Property and buildings sold 12-1908 to

W. B. and W. G. Jordan.

Measurements:
Original buildings:

Carhouse and Office (two story and basement, brick)		88′ x 140′ 6"
Stable (one story, frame) (located on far SW corner of the property)		20′ 2" x 60′ 3"
Addition (two story and basement, stone and brick)		
West of the Engine Room		54.1′ x 65.2′
Engine Room		84.1′ x 128.75′
	and	74.65′ x 63.3′
Shop		55.9′ x 62.85′
Boiler Room		55.9′ x 99.8′
Basement under the street with a Condenser Pit		53′ 3" x 75′ 1"
		22′ x 46′ 9" x 13′ 9" deep

First St. Property

This was a two story and basement, brick building, 22′ x 83′, located on the Southwest corner of 1st St. and Hennepin Ave. It was used as a passenger transfer station. Purchased 1-1884. Sold 9-1901.

St. Paul City Ry. Horsecar Barns

Pages 113, 115 and 121

All measurements are from the Drum & Co. valuation report.

Exchange St. Barn

Real estate: 48′ x 198′ between 3rd and 4th Sts., on the East side of Exchange St., acquired 7-1-1872. Disposed of between 1879 and 1882.

Measurments are as indicated on the drawing.

4th St. Barn

Real estate: Lot 4, Block 22, St. Paul Proper, located on the South side of 4th St. between Wabasha and St. Peter Sts. Lot size was 50′ x 150′. Disposed of between 1879 and 1882.

Measurements:
Horse Barn (one story and basement) 38′ x 150′
Completed May, 1875. Used as a stable only, without tracks. By 1879 it was considered a poor building with a damp basement, but with a better location than the Exchange St. Barn.

St. Peter St. Barn

Real estate: Lots 6-7, Block 21, St. Paul Proper, were acquired 12-6-1878. Each lot measured 50′ x 150′ for a combined area of 50′ x 300′ located on the East side of St. Peter St. between 4th and 5th Sts. The facility located here was replaced by the Smith Ave. complex in 1884. The buildings were leased 1-28-1885 to Samuel G. Dickinson for ten years from 4-1-1885. Architect L. S. Buffington designed modifications to convert the buildings to a department store. Thomas Lowry purchased the property from SPCR on 9-18-1890 for $100,000. Lowry had purchased five adjacent lots from the estate of W. F. Davidson in 1889. Six lots, 3-5 and 8-10, formed the basis on which the Arcade Investment Co., organized in 1891 by Thomas Lowry, subsequently erected the Lowry Building under the leadership of Horace Lowry.

Measurements:
A two story, brick building was completed May, 1879, on the 4th and St. Peter Sts. corner of the property for use as an office and stable. (The office address was 15 W. 4th St.) A 45′ extension to this building plus the addition of a third story was authorized by the Board of Directors on 10-24-1879 for completion in 1880.

A three story, brick building, 50′ x 109′, was built on the 5th and St. Peter Sts. corner of the property, also in 1880, extending back nearly to the rear of the 1879 building. This was used as a carhouse and repair shop. Double track for access was authorized to be laid from the corner of either 4th and St. Peter Sts. or 5th and Wabasha Sts.

Kent St., or University, Barn

Real estate: the block bounded by Kent St., University Ave., Mackubin St., and Aurora Ave. Lots 10-14, 17-20, and 22 were acquired 4 and 5-1882. Lot 21 was acquired 5-1884. All lots were in Block 3. Date built should be 1882. Lots 11-12 were sold 6-1905 with the remaining lots sold 11-1907 to the Arcade Investment Co.

Measurements:
University Ave. and Kent St.

Carhouse	40′ x 210′
Horse Barn	80′ x 210′
Blacksmith Shop	20′ x 40′

South side of University between Kent and Mackubin Sts.

Horse Barn (one story, frame)	14′ x 87′
Horse Barn (one story, frame)	36′ 11" x 96′ 0"

North side of Aurora between Kent and Mackubin Sts.

Carhouse (one story, frame)	70′ 6" x 62′ 0"

South side of University, North side of Aurora, between

Kent and Mackubin Sts.
Carhouse (one story, frame 50′ front, 78′ rear x 244′

Laurel Ave. Barn

Real estate: Lots 7-11, Block 7; no acquisition dates given. The facility was in operation as of 1884. Deeded 7-8-1898 to William G. Peet in partial payment for capital stock of the St. Paul & Suburban Ry.

Measurements:
East side of Dale St. between Laurel and Ashland Aves.
Dale St. Horse Barn (one story, frame) 105′ x 27′
South side of Laurel Ave., between Kent and Dale Sts.
Laurel Ave. Barn
Horse Barn (two story, frame) 70′ x 120′
Carhouse (one story) 50′ x 140′
Blacksmith Shop (one story, frame) 20′ x 24′
Horse Barn Addition (one story, frame) 50′ x 60′

West 7th St. (Fort St.) Barn

Real estate: Lots 1-6, 18-20, Block 12: seven lots acquired 2-1883, two lots 10-1883, and one lot 5-1884. Date built should be 1883. Entire property sold 10-1907 to E. B. Vandervater.

Measurements:
Fort St.
W. 7th and Lee Sts.
Horse Barn (two story) 40′ W. 7th, 160′ Lee St. x 110′
South side of W. 7th between Tuscarora and Lee Sts.
Carhouse (one story, frame) 40′ x 110′
Lee Ave.
West side of Lee between W. 7th and Bay Sts.
Horse Barn (one story, frame) 70′ x 116′
South side of Lee between Bay and View Sts.
Blacksmith Shop Addition (one story, frame) 25′ x 20′

Grand Ave. Barn

Real estate: no record of acquisition or disposition. Was used for operation of the first electric line on Grand Ave.

Measurements:
North side of Grand between Victoria and Avon Sts.
Car Shed (one story, frame) 40′ x 150′
Office (one story, frame) 20′ x 15′

There were no track measurements or diagrams for all the above.

Oak St. Office and Barn (Smith Ave. Barn)

The street locations are taken from the Drum & Co. valuation report; apparently re-naming or relocating later took place.

Real estate: Lots 10-14, Blocks 16-17 (later Block 67), Dayton & Irvine's Addition, recorded 7-1884. Facility was in service during 1884. Entire property sold 11-1911.

Measurements:
North side of Ramsey St. between Smith Ave. and Thompson St.:
Ramsey St. Car Station
(one story, stone and frame) 153' x 194' and 105' x 155'
Oak, Ramsey, and Forbes between Pleasant and Oak:
Oak St. Office, Carhouse and Horse Barn
(two story, stone and frame) 158' x 175'

The general offices of the company were moved here in 1884. In 1893 the executive offices were relocated to the Globe Building on the Southwest corner of 4th and Cedar Sts. Operating offices remained at Oak St., later called Smith Ave., until 6-1904 when they were moved to the new company building at College and Wabasha.

Rice St. Barn

Real estate: two lots acquired 12-1885 and eight lots 1-1886. Date built should be 1887. Some old building material was sold 12-1911. Property sold 5-1913 to Barrett & Zimmerman.

Measurements:
EAST side of Rice St. between Front and Litchfield Sts.:

Stable (two story, frame)	104' 10" x 185' 4"
Barn (two story, frame)	66' x 132'
Platform	15' x 132'
Carhouse (one story, frame)	23' x 100'
Car Station (one story, frame)	89' x 132'

Greenbrier Barn

Real estate: Lots 1-7, BLock 1, acquired 1888. One old building sold 10-1904. Property sold 10-1905.

Measurements:

Carhouse (one story, frame)	66.1' x 125.0' long
Horse Barn (two story, frame)	167.4' x 125.0' long

Pages 116 and 121

The Selby Ave. Power House was located on Lots 9-11, Block 6, purchased 4 through 6-1887. Lot 8 was acquired 11-1906 from

Thomas Lowry. Track was removed in 8-1907 and the property sold 10-1907 to Clara Kennedy.

Pages 117 and 121

Midway Carhouse, St. Paul: the Drum & Co. valuation report listed the location as the South side of University Ave. between Raymond and LaSalle. Lots 76-77, Hewett Outlots First Division, were purchased 9-1891 from Calvin and Cora Goodrich. The property was sold 10-1908 to Barrett & Zimmerman.

Page 119

M. L. & M. Ry. Roundhouse

Upper drawing: the following additional measurements are taken from the Drum & Co. valuation report.

Depot (one story, frame)	22′ x 36′ + 18′ x 30′
Coal House (one story, frame)(on 31st St.)	18′ x 60′
Coal House (one story, frame)(in the yard)	26′ x 60′
Sand House (one story, frame)(by roundhouse track 1)	12′ x 16′
Store(room) at Depot (one story, frame)	16′ x 20′
Union R.R. Storage Co. (one story, frame) (East building at 31st St. and Nicollet Ave.)	16′ x 50′

Page 121

Carhouses 1902 and 1907

As of 12-31-1901 nine carhouses were in use: four in Minneapolis: East Side, 31st St., Bloomington and Minnehaha; and five in St. Paul: Midway, Smith Ave., Rice St., E. 7th St. and Selby Ave.

As of 12-31-1907 only five carhouses were in use: three in Minneapolis: East Side, 31st St., and Bloomington; and two in St. Paul: Snelling and E. 7th St.

Owen St. Station

The storage track along the North side of the substation building was built during 1920-21.

Snelling Station and Shops

The first real estate was purchased in 1902. The property on which the station and shop facilities were built consisted of 37.46 acres. Track entrance to the carhouse from Snelling and University Aves. was begun 9-1904. Work on the shop buildings began 7-1905.

Property adjacent to the East, approximately 20.52 acres, was acquired 9 and 10-1907. The Motordrome was built on this land.

Three parcels were sold to Montgomery Ward & Co. in 1920.

Coal bins in the station yard were built 1912.

Trackage in the Storage Shed area was constructed during 1907. The entire special work layout was shifted southward in 192? after the 1925 fire. Track removal was not undertaken until 1942:

Track No.	L.F. Removed	Switches Removed
2	436.2	
4	381.7	1
5	353.0	1
6	317.0	1
7	349.7	

An additional 148.2 L.F. was removed from tracks 1 to 6 in 194?.

(The track numbers were assigned from right to left [see map on page 132]: 8-7-1-2-3-4-5-6.)

Page 125

Bloomington Station real estate was sold 12-1910.

East Side Station was rebuilt during 1902 with additional major sums expended on the building during 1905-06. Track reconstruction also took place in 1906. Storage yard tracks 37-40 were built during 1916-17; 37 and 40 were 300 L.F. long, 38 and 39 285 L.F. long. This storage yard property was sold 1945.

E. 7th St. Station

A sizeable amount of track construction took place during 1904.

A rebuilding of the station took place from 1905 to 1907, with the majority of the work done during 1906. Apparently all the original structure was retained. Tracks 4-11 went inside the original building. Tracks 12-31 were newly built; 28-31 were not accessible from the rear until connecting tracks and special work were installed during 1913. A crossover was installed on E. 7th St. from the westbound main track to the eastbound main track just west of the ladder track switch for yard tracks 16-19.

Additional track construction took place during 1909-10. An office addition was built during 1912-13. During 1913-14 the special work at the front of the station for tracks 4-11 and 20-27 was rebuilt. The old building over tracks 4-11 was demolished at this time. Rear entrance curves, special work and crossing for tracks 7-12 were built during 1913-14. One old building (a shed ?) was dismantled 1-1914. The crossover on E. 7th St. installed in 1906 was removed in 1917.

Change of name to Duluth Ave. Station was effective 9-19-1918.

The inspection and repair shop building was completed 11-1920. Special work on the rear track connections was removed in the process.

Tracks 24-29 and related yard special work were removed 1947-48. Special work on E. 7th St. for tracks 24-31 was removed 11-1950.

Nicollet Station

The 1911 rebuilding required removal of that part of the Roundhouse containing tracks 1-4. The original Boiler Room building retained contained one track inside on which the Private Car was stored. In 1915 tracks 15-17 were extended and an additional track built to the Blacksmith Shop. A new heating plant in the station building was completed 11-1916 and the old Boiler Room building demolished 12-1916. More of the old Roundhouse was removed 1916-18 to build tracks 15(sic)-24. The old Storehouse Building was converted into a garage 12-1917. Tracks 15-16 were again extended in 1923. The remainder of the old Roundhouse was demolished in 1939.

The South St. Paul Yard was also referred to as the Malden St. Carhouse or the Spring Park Carhouse. The loop track through the property was referred to as the Spring Park Loop. Four storage tracks were built during 1919-20. According to the construction records all rail and special work (seven switches, including two on Concord St.) were removed April 12-15, 1927. The property was sold 1938 to John F. Noble.

A car station was proposed for the South side of St. Clair St. between Toronto and Oneida Sts., St. Paul, to be called the St. Clair St. Yard. The plan indicated a small building, with no interior trackage, adjacent to six open storage tracks. A zoning change by the city was needed to permit construction. The rezoning was refused and the station never built. The land had been acquired in 1916 and some money spent on trackwork, details not specified. Small amounts of money were expended in 1918-19 on grading grounds and laying track. This probably pertained to a "dump track" located at the Toronto St. end of the property. Real estate records indicate additional purchases in 1917 and 1923. All of the property was sold to the City of St. Paul in 7-1929.

Snelling Shops

Construction dates for subsequent construction projects are:

Heating Plant	1907
Storehouse	1908-10
General Repair Shop	1909-10
Track Storehouse; Forge Shop	1910-11

Lumber Shed(s)	1910-11
Fire Pumps	1911-12
Overhead Dept. Garage	1911-12
Coal House	1912
Oil Storage Building	1912-13
Repair Shop Addition	1914
Kitchen built in former Pipe Shop	1916
Transfer Table rebuilt (including overhead trolley) 1916 and 11-1917 to	1918
Transfer Table pit extended	1919
Sprinker System installed in buildings; 100,000 Gal. Storage Tank built	1925-26
Storage Building (Wheel Shop)	1925
One shop crane altered to turn cars on side	1925

Page 135

Mid-Continent Development & Construction Co. purchased the East Side, Lake St., and Duluth Ave. Car Stations.

Office Buildings

The fourth floor was added to the Minneapolis building during 1925-26. This building was demolished in 1961.

CHAPTER 5 OPERATIONS

Routes and Combinations of Lines

Minneapolis

page 142

1892

A "University, Hennepin & Hawthorne" line was listed in company records.

1897

The routing for the "4th Ave. So. & 6th Ave.No." line probably should be the same as that given on page 143 under 1900-01.

1900

"20th Ave. No. & Hennepin" and "Hennepin Local" lines were noted in the accounting records. See 1902.

Pages 144-145

1904/1910

An expenditure authorization dated June, 1904, was issued for placing "Oak & Harriet" and "Kenwood & 8th St. S.E." destination signs on all cars assigned to East Side Station. Perhaps the latter line and the "Bryn Mawr & 8th St. S.E." lines were operated concurrently.

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1929

See "Cedar Ave." line: track WAS abandoned in 1928 on the streets indicated. The wye at 52nd St. and Bloomington Ave. was rebuilt using 153 L.F. of track left in 52nd St. for that purpose. Trolley wire was removed in 1928 and the overhead poles during 1928-29. Rail on 52nd St. was removed in 1928 but that on Cedar Ave. remained until 1932-33. No explanation for the use of the destination signs given was found.

St. Paul Horsecar Lines and Routes

Page 157

An early 1884 directory listed the lines operated and their routings. The name of each route was given on the front, sides and rear of the horsecars in the same color as the lights.

Seventh St. line Green light

From North St. via Bradley, E. 7th, W. 7th, Ramsey to Oak. Six minute headway.

Lafayette Ave. line White light

From Otsego St. via Lafayette, Locust, 7th, Jackson, 4th to Seven Corners, W. 3rd, Pleasant, to Ramsey-Forbes-Oak. Seven minute headway.

Mississippi St. line Yellow light

From Ramsey St. via 7th, Jackson, 13th, Mississippi to Pennsylvania. Eight minute headway.

University Ave. line Purple light

From Kent St. via University, Rice, Martin, St. Peter, Iglehart, Wabasha, 4th, Sibley to the Union Depot. Eight minute headway.

West 7th Street and Union Depot line Red light

From the Union Depot via Sibley, 4th, to Seven Corners, W. 7th to the barns at the corner of Lee Ave. Nine minute headway.

St. Anthony Hill line Green light

From the Union Depot via Sibley, 4th, Wabasha, 10th, Rice, Summit, Nelson, Western, Laurel to Dale St. Seven minute headway.

Grand Ave. Extension

Via Dale St. and Grand Ave. to Victoria. Cars left the Union Depot on the hour until 7:00 p.m. and carried a red flag.

The Mortgage Bond Trust Agreement dated April 1, 1884, provided the following list of lines and their routings.

Union Depot & St. Anthony Hill line

Grand and Victoria, Grand, Dale, Laurel, Western, Nelson, Summit, Rice, 10th, Wabasha, 4th, Sibley, to Union Depot.

Union Depot & Fort St. line

Fort and Lee, Fort (W. 7th), to Seven Corners, 4th, Sibley, to Union Depot.

Ramsey & Bradley St. line

From Ramsey-Forbes-Oak, Ramsey, Fort (W. 7th), E. 7th, to E. 7th and Kittson St. (Bradley St. was the next street East of Kittson St. but beyond the bridge over the railroad tracks.)

University Ave. to Union Depot line

Kent and University, University, Rice, Martin, St. Peter, Iglehart, Wabasha, 4th, Sibley, to Union Depot.

Ramsey, Seventh & Mississippi St. line

From Ramsey-Forbes-Oak, Ramsey, W. 7th, to Seven Corners, 4th, Jackson, 13th, Mississippi to Pennsylvania. As of 10-1-1884 the name had been changed to Ramsey, Fourth & Mississsippi St. line.

Lafayette Ave. & Seven Corners line

3rd and Pleasant, 3rd, to Seven Corners, 4th, Sibley, E. 7th, Lafayette to Otsego.

The Mortgage Bond Trust Agreement dated January 15, 1887, provided the following list.

St. Anthony Hill line

Grand and Victoria, Grand, Dale, Laurel, Western, Nelson, Summit, Rice, 10th, Wabasha, 4th to Broadway.

Lafayette & West 7th St. line

Fort and Lee, Fort, to Seven Corners, 4th, Jackson, E. 7th, Locust, Lafayette, to Collins and Burr.

E. 7th St. or Dayton's Bluff line

Ramsey-Forbes-Oak, Ramsey, W. 7th, E. 7th to Forest.

University Ave. & Mississippi St. line

Kent and University, University, Rice, Martin, St. Peter, Iglehart, Wabasha, 4th, Jackson, 13th, Mississippi, Acker to Cortland.

Lafayette Ave. & Seven Corners line

3rd and Pleasant, 3rd, Seven Corners, 4th, Jackson, E. 7th, Locust, Lafayette, to Collins and Burr.

Ramsey, Fourth & Mississippi St. line

Ramsey-Forbes-Oak, Ramsey, W. 7th, 4th, Jackson, 13th, Mississippi to Williams St.

May 1, 1890

W. 7th St. & West St. Paul line

W. 7th and Pleasant, W. 7th, Wabasha, 5th, Robert, Fairfield, Dakota, Winifred to Ohio.

Rice & West St. Paul line

Rice and Maryland, Rice, Wabasha, 5th, Robert, Concord to Bancroft St.

University Ave. & Mississippi St. line

University and Dale, University, Wabasha, 5th, Jackson, 13th, Mississippi, Acker to Cortland.

Rondo St. line

University and Kent, Kent, Rondo, Rice, 10th, Wabasha, 5th to Wacouta.

Lafayette, Payne & Greenbrier Ave. Line

Maryland and Greenbrier, Greenbrier, Sims, Payne, Reaney, Edgerton, Minnehaha, Burr, Lafayette, Locust, E. 7th, to 7th and Wabasha.

Maria Ave. line

E. 7th and Maria, Maria to Plum.

Selby Ave. Cable line

E. 7th St. Cable line

Grand & West 7th Electric line

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St. Paul

1892

A directory dating to early 1892, before the Jackson St. track was completed, is summarized following.

East 7th St. Cable line

Seven minute headway; ten minute at night.

Maria Ave. Extension

E. 7th and Maria to Earl and Hastings.

Grand Ave. line White light

Ten minute service to Grand and Lexington wye; 45 minute service to Grand and Cretin. Grand and Cretin-Grand-Oakland-Ramsey-W.7th-Wabasha-5th-5th and Wacouta. Return via 5th-Robert-8th-Wabasha-W.7th.

Interurban line Blue sign; Green light

Six minute headway; 12 minute at night. Loop route was Wabasha-5th-Robert-8th-Wabasha.

Lafayette & Rondo line Red and Green light

Ten minute headway. Maryland and Greenbrier-Greenbrier-etc.-Lafayette-10th-Broadway-5th-Robert-8th-Wabasha-10th-Rice-Rondo-Rondo and Dale. Return via Wabasha-5th-Broadway.

Lexington Ave. line Red, Green and Yellow light

Twenty-six minute headway. County Road (later Como Ave.), St. Anthony Park-Langford-Snelling-Minnehaha-Lexington-University-Wabasha-5th-5th and Wacouta.

Mississippi, Wabasha & West St. Paul line Purple light

Ten minute headway. Brainerd and Edgerton-etc.-Mississippi-13th-Jackson-5th-Robert-8th-Wabasha-Winifred-Ohio-George-Smith-Smith and Annapolis. Apparently returned via Wabasha-5th-Jackson.

Rice & Concord line Orange light

Eight minute headway. Rice and Front-Rice-Wabasha-5th-Robert-Concord-Concord and Arthur. Apparently returned via Robert-8th-Wabasha.

Rice St. Extension line

Eight minute service in rush hours meeting each main line car. Sixteen minute service at other times meeting every other main line car.

Como Ave. Extension line

Twenty minute service. On Como Ave. from Rice to Front.

State St. Extension line

State and Concord to Robert and Annapolis.

Selby Avenue Cable line

Four minute headway; eight minutes at night. Cars that connected with the "Merriam Park Extension" line carried a Red flag by day and a Red light at night. 4th and Broadway to Selby and Milton.

Merriam Park Extension line (electric)

Twelve minute service. Selby and Milton to Prior and St. Anthony.

West 7th St. line Red light

Eight minute headway. 7th and Tuscarora-W. 7th-Wabasha-5th-Robert-8th-Wabasha-W. 7th.

West 7th St. Extension line

Hourly service. On W. 7th from Tuscarora to the Fort Snelling bridge.

Randolph St. Extension line

Hourly service. On Randolph from W. 7th to Cretin.

A. "W. 7th & Mississippi St." line was listed in later 1892 records. "Como Ave." and "Como Ave. Extension" lines were listed in 1891 and 1892 records.

1896

A list of lines, prepared in May, somewhat similar to the 1892 directory, contained no information as to service and headways. In comparing the two, only the information from the 1896 list that is different from the 1892 list is presented.

Como Ave. line

Wabasha-5th-Robert-8th-Wabasha-Rice-Como-Front-Chatsworth-Van Slyke-Como Park Loop.

Seventh St. and Fort Snelling lines

Both started at E. 7th and Duluth Ave., the former line running to W. 7th and Tuscarora, and the latter to the Fort Snelling bridge.

Grand Ave. and Groveland Park lines

Both used the 7th-Wabasha-5th-Robert-8th-Wabasha-7th loop, the former line running to Grand and Snelling, the latter to Grand and Cretin. (Groveland Park was the area along the Mississippi River West of Cretin Ave.)

Hamline & St. Anthony Park line

Apparently wyed at 5th and Wacouta (listed as 5th and Sibley).

Interurban line

Jackson St. line

5th and Jackson to Maryland and Cortland.

Lafayette & Rondo line

Same routing but ending at Rondo and Victoria.

Maria Ave. line

7th and Wabasha to Indian Mounds Park

Merriam Park Extension line

Selby and Avon to Prior and University.

Mississippi, Wabasha & West St. Paul line

Randolph St. Extension line

Rice & Concord line

Rice and Maryland to Concord and Arthur.

Rice & State line

Rice and Maryland to Robert and Annapolis.

Stryker Ave. line

5th and Wabasha to Stryker and Annapolis.

Selby Ave. Cable line

4th and Broadway to Selby and Milton.

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1903

New destination sign "Hazel Park to Wabasha" was authorized for Stillwater cars. This was probably the beginning of cutback service to the newly installed Ames Ave. wye.

1905

The "Payne-Phalen" line was operated from the Smith Ave. Carhouse.

Page 168

Mail Service

A correspondence index found in the records provided a little more information on this subject.

Contracts in effect during 1914 with the U. S. Railway Mail Service for carrying pouch mail on streetcars:
341001 Interurban, Merriam Park, Camden Place, Robbinsdale.

341005 Stillwater, including North St. Paul, Willernie and Bayport.
341008 Fort Snelling.
341010 South St. Paul, including South Park.
341011 Minnetonka, including Hopkins, Glen Lake, and Excelsior.
341012 Linden Hills.

Other contract references: Cómo (1921), Minneapolis to Oxboro (1922), and St. Louis Park (added 1924).

A letter dated January, 1924, proposed discontinuance of mail box service on "Interurban" line cars.

Mail service was still being provided into the late 1920's. A few routes survived into the 1930's and 1940's. Service to Hopkins continued until 1951.

Page 175

Operating Practices

Signal Systems Protecting Single Track

A list of installations has been compiled from the construction journals.

1914 Camden Extension, Minneapolis; Jackson St., Stryker Ave., St. Paul; South St. Paul.
1914 One Nachod Type H semaphore at the entrance to single track on the South St.Paul line. East 50th St., Minneapolis.
1915 One Nachod Type H semaphore at the entrance to single track on St. Clair St., St. Paul.
1916 Cedar Ave.-35th to 42nd Sts., Nicollet Ave.-50th to 54th Sts., Minneapolis. South St. Paul right-of-way.
1918 Light cluster at Prior and University Aves., St. Paul.
1919 Telephone booths for dispatching purposes installed at the two wyes (6th St., Linden St.) on the South St. Paul line.
1921 All manual systems: Camden Extension, Columbia Heights single track, Minneapolis; Randolph Extension, St. Paul. Single track signal at Inver Grove on the South St. Paul line.
1922 Signal lights on Prior Ave. single track, St. Paul.
1923 Signal lights on: E. 25th St. line at various points South of Lake St., Minneapolis; Prior Ave., Maryland Ave.-Dale to Wheelock Pkwy., St. Paul. Nachod signal lights were removed and replaced by standard light clusters on Jackson St., Western Ave., and Stryker Ave., St. Paul.
1925 Cedar Ave. and 42nd st. to Bloomington Ave. and 52nd St., Minneapolis.
1930 Removed from Cedar Ave.-42nd to 50th Sts., Minneapolis.
1932 Nachod installation on the St. Louis Park line: W. Lake

St. from Excelsior Ave. to Fern Siding (revised 1933). Bryn Mawr line, Minneapolis.

1940 Robbinsdale line from France and Oakdale to 42nd and Broadway.

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Trolley Bus Opertions

Number 1 was a Mack Model AB gasoline bus purchased in 1921 operated out of the N. Minneapolis-Camden Garage.

Number 2, built by J. G. Brill Co., was slightly more than 23 feet long, with a wheelbase of 137 inches. Automatic foot-operated control, giving series-parallel acceleration of the main motors was employed. The control equipment was mounted beneath the bus, fully enclosed for protection against dust and water. The master controller had three positions, permitting running for short periods with series connections of motors and all resistance in the circuit for switching, an economical low running speed with motors in series and all resistance cut out, and full parallel connections of motors for normal service. Upon starting, the foot controller could be at once operated to the desired position, and proper acceleration was accomplished regardless of route or load conditions. (October, 1922, Westinghouse Electric Co. publication.)

Stillwater Division

Page 182

The route in downtown St. Paul when the line was opened in September, 1899, was: 7th-Cedar-8th-Wabasha-5th-Broadway-7th.

Page 183

The date in the photograph caption is incorrect. The proper time is about 1906-07.

Page 184

Experimenting with block signals began July, 1904. Telegraph signals, using eight desk sets, were installed beginning in February, 1910. In 1918 a switchboard and desk set for the signal system were installed at the E. 7th St. Station.

Page 186

An 8´ x 10´ standard waiting station was also located at Larpenteur Ave., St. Paul.

Page 192

Several timetables have been located which depict the decline in service during the 1920's and 1930's.

Timetable #66 effective 9-8-1924, showed that service to Stillwater, White Bear and Mahtomedi was already on an hourly basis. Rush hour service was: half-hourly to Stillwater; one half-hourly trip each a.m. and p.m. to Mahtomedi; one a.m. and p.m. trip to Wildwood; the 5:35 p.m. run operated non-stop from St. Paul to Stillwater. Stillwater service on Saturday and Sunday afternoons was half-hourly.

Timetable #76 was effective 9-10-1928. The half-hourly service to Stillwater on weekend afternoons had been discontinued; thus Saturday service was similar to weekday service and Sunday service was all on an hourly basis. Four weekday morning rush hour trips from Stillwater to St. Paul ran non-stop from Wildwood to 6th and Robert. Three connecting trips from Mahtomedi transferred passengers at Wildwood to these non-stop runs, while one trip from Mahtomedi ran non-stop from Wildwood to St. Paul as the second section of the Stillwater run.

Timetable #78 effective 5-25-1929 indicated that service to Stillwater, White Bear and Mahtomedi was still on an hourly basis. Several additional rush hour trips gave each locality some half-hourly service.

Timetable #82 effective 7-18-1932 was probably the last schedule operated. It was essentially the same as the 6-22-1930 schedule mentioned in the book. Stillwater Sunday service was all two-hourly. Stillwater local lines were all on 40 minute headway. However the Mahtomedi line had half-hourly morning and evening rush hour service with two-hourly mid-day service.

Page 193

During 1933 the block signal system on the Omaha Ry. bridge (installed 1925) operated from the Wildwood Substation was removed. A D.C. signal system operated from the overhead trolley wire was substituted. All block signal apparatus in the dispatcher's office was removed as were the semaphores at Autumn Ave. end of double track, Colby Siding, Pennsylvania Siding, Soo Line Siding and Wildwood Siding.

Lake Minnetonka Division

Page 196 (see also Page 175)

White light clusters were also used as block signals on the single track portions of the line. Unfortunately we have not

located a description of their operation. The Drum & Co. valuation report of 1-1-1926 listed the following installations.

Three light cluster
- one at 9th Ave., Hopkins.
- one at Deephaven Junction.
- one at the Excelsior Substation (between pole #932 and #955).
- two at end of double track, Excelsior.
- one at the Tonka Bay loop.

Five light cluster
- one at Excelsior (between pole #956 and #961).

Six light cluster
- one at Excelsior (between pole #956 and #961).
- one at Excelsior (between pole #962 and #967).
- three on the Deephaven line:
  - one between pole #699 and #726;
  - one between pole #727 and #755;
  - one between pole #786 and #813.

Page 198

During 1916 Dayton fare registers were installed on cars assigned to the Lake Minnetonka Division.

The Lake Harriet platform and canopy was constructed in 1911.

The Excelsior Amusement Park began operating May 23, 1925.

Wildwood Park

Page 199

The Wildwood Park Association purchased Government Lot 3, Section 29, Range 21, Grant Township, April 6, 1883, from F. A. Seymore as Trustee for David Tice and D. M. Sabin. About 1885 or 1886 the W.P.A. defaulted on a loan owed to William R. Merriam. Sold at a sheriff's sale to Merriam for $14,000 all holdings of the W.P.A. were deeded to the Wildwood Park Company on March 7, 1887. During 1890 it was described as a "picnic resort" with "tents of campers".

In May, 1892, the W.P.C. sold 36.93 acres to the St. Paul & White Bear R.R. The railroad acquired an additional five acres of Government Lot 3 plus a 60 foot wide right-of-way (15 acres) May 20, 1892. The railroad was said to have built a bathhouse, bowling alley, merry-go-round, and laundry on the five acre parcel.

On page 79 in the book mention is made of five acres sold under foreclosure proceedings in 1896.

On May 19, 1899, the Minneapolis & St. Paul Suburban Ry. purchased five acres of Government Lot 3 from W. A. Sonmor, former president of the then bankrupt W.P.C., who was the court-appointed assignee for all the W.P.C. real estate. The railway also purchased all of Government Lot 1 from J. B. Warren. The railway acquired additional real estate in October, 1901, (cost $3,800) and May, 1902, (five acres)(cost $1,725).

At the 12-31-1910 re-organization 28.7 acres were conveyed by the railway to the Minnetonka & White Bear Navigation Co. (The Drum & Co. valuation report as of 1-1-1926 calculated this parcel at 25.995 acres.) The 57 acres owned by the Rapid Transit Real Estate Corp. were in addition to these holdings.

A map of the property indicates the 28.7 acres comprised the Wildwood Park along the shore of White Bear Lake. A 50 foot wide parcel abutting the North edge of this property, 1.4 acres, was owned by the R.T.R.E. Corp. The additional 57.4 acres owned by the R.T.R.E. Corp. consisted of (1) 18.8 acres: an inverted L shaped parcel adjacent to the White Bear branch line right-of-way on the South and to the main line right-of-way on the West; (2) 38.6 acres: of Government Lot 3 adjacent to the main line right-of-way on the East and South of the powerhouse, including Powerhouse Pond.

As of 12-31-1907 it was reported that the Park was leased to outside operators, which situation continued through 1911. For 1907 U.S. Census purposes the investment was estimated at $80,000 with average annual patronage of 300,000 persons.

Page 201

Photographs dated 1911 show a steam powered miniature railway located along the right-of-way East of the roller coaster and pavilion. As October, 1926, Thornton Miniature Railway Co. was the operator of this miniature railway.

The Drum & Co. valuation report of 1-1-1926 indicates that operation of most of the amusement facilities shown on the map on page 82 of the book was performed by outsiders.

1. The M.& St.P. Suburban R.R. owned the waiting room (19) and dispatcher's office (21).
2. P. J. Metzdorf, the Park Superintendent, owned one cottage and one shed, both not shown on the map, in the Northeast corner of the property.
3. Amusements Service Corp. owned the improvements inside the skooter building (14).
4. Fred W. Pearce Corp. owned the roller coaster (5).
5. Recreation Service Corp. owned the merry-go-round inside building (3); as of June, 1925, General Amusements Co. was operating it.
6. Capital Amusements Inc. owned the skee ball alley (13),

mysterious sensation (12), giant aeroplane (9), and kiddie aero (4).

During the last five years of its existence, the Park was leased to and operated by the Fred W. Pearce Corp.

In 1938 a contract was made with Northwestern Lumber & Wrecking Co. to remove all the buildings, roadways and fences. Net proceeds (salvage less cost of demolition) were $2,850 plus $300 realized through miscellaneous sales.

Big Island Park

Page 202

An informal opening of the park occurred May 27, 1906, with service provided by five cars per hour from Minneapolis, one ferry boat, and two express boats. The park officially opened August 5, 1906, when partially complete. Most of the construction work was completed from October, 1906, through June, 1907.

For the 1907 U.S. Census (as of 12-31-1907) the company reported its investment at $342,459 with average annual patronage of 500,000 persons.

The company's General Passenger Agent wrote an article for the Electric Railway Journal after the 1907 season. Excerpts from this lengthy article give more insight into the operations.

"Big Island Park is twenty miles from Minneapolis and thirty miles from St. Paul. I believe we have one of the most superb electric lines---leading from the Twin Cities to Excelsior on Lake Minnetonka---over this line our cars speed along at a mile-a-minute clip with ease. Of course, within the city limits we necessarily have to run slow, but the fourteen miles from Minneapolis city limits to Excelsior have been made as fast as 15 1/2 minutes, so that distance is not necessarily a handicap. It is only 60 minutes from Minneapolis to Big Island Park and a little less than two hours from St. Paul."

"Last summer (1907) we handled the majority of picnics conducted by Minneapolis churches, Sunday schools, lodges and special parties, but owing to the fact that we had not yet put on through cars from St. Paul, the amount of business from that city was limited. We discovered that Big Island Park is essentially a spend-the-day picnic resort. Most of our business leaves Minneapolis before 10 a.m. It is either a question of going out before 10 a.m. and returning to the city about 6 p.m., or leaving the city about 2 p.m. and returning about 11 p.m. It can readily be seen that the time taken to go to the park and the time taken to return home would cut out the good part of the evening."

"When we first opened Big Island Park we thought that the steamboat ride between Excelsior and the island might prove to be an argument against people going to the park in any considerable numbers, but last year's experience taught us that, for the most part, people enjoyed the ferry trip. During the week one ferry boat performs hourly service---. During the rush hours of the day an extra boat is put on. On Sundays and holidays the three ferries furnish twenty-minute service throughout the day and they have all they can do to take care of the business on that schedule."

"With the intention of making Big Island Park strictly a family resort and a place to enjoy an ideal summer day's picnic, we have expended a great deal of effort to supply enough comforts on the island to make one's holiday pleasant. Still we have not attempted to improve too much on nature. Big Island is an island of majestic trees, rolling lawns, knolls and numerous beautiful vantage points from which may be enjoyed a variety of vistas of water and sky, and altogether it is a most unusual resort from a natural beauty standpoint."

"Some exceedingly effective architectural features are employed on the island, and of these probably the most novel is the peristyle following the ridge of the island. It is built of arches of white concrete and tile, outlined with electric lights. Four picnic kitchens equipped with ranges and tables and built of concrete are located in different parts of the island in the picnic grounds so that it is possible for at least four large picnics to have culinary accommodations at the same time."

"While it is essentially a picnic resort, Big Island Park still has some inexpensive and attractive amusement features sufficiently numerous to add zest to the holiday. The park's main attraction is the music casino, built of steel, concrete and glass, seating 1,500 persons comfortably on opera chairs. During the few weeks of the first season (1906) we had Innes' band for two weeks, and last year (1907) Banda Rossa for five weeks, the Navassar Ladies' Band for two weeks, and Nelson And His Band with Twin City vocalists for two weeks. We are about convinced that foreign bands did no larger business for us than good local bands. It seems that band music should be an incidental matter, with no charge for it. It was our experience that we secured a great deal of business in the evening from the many cottagers about the lake, and by a convenient system of boat schedules on all our express boat routes, we enabled cottagers to leave their homes after supper, visit the park, listen to the band concert, and return to their homes at a reasonable hour."

The land transferred in the 12-31-1910 re-organization from the M. & St.P. S. Ry. to the Minnetonka & White Bear Navigation Co. was listed as 57.7 acres.

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The offeer for purchase of the property made in March, 1916, was never consummated. A proposed contract made in April, 1919, for sale of the property to an Interurban Development Co. was also never completed; earnest money of $1,000 was forfeited.

After closing of the park in 1911, the dismantling process was rather slow. The following transactions were located in the accounting records.

1912 Fifteen rowboats sold.
1913 Electrical equipment was removed from the substation. ($9,799 was credited to the property account.)
1914 300 chairs and one second-hand Andrews boiler sold.
1915 Lumber from the roller coaster, 300 chairs and 10 park benches sold. The power transmission cable was removed, $4,299 being received from its sale in 1916. $130 was expended on painting during the year.
1916 500 chairs and 130 benches sold.
1917 Scrap pipe, tile and arches were sold. The telephone cable to Linwood was sold to the Tri-State Telephone & Telegraph Co.
1918 Scrap and one boiler were sold. The water tower and music casino were sold for scrap; $2,741 net proceeds were received.
1919 Ice house and cook shanty sold to the State Game Protective Association.
1920 Old tile was sold.
1924 Scrap metal was sold in July. $422 net of labor cost for dismantling was received.

All of the real estate on Big Island owned by the M. & W. B. N. Co. was sold June 1, 1941, to the Board of Governors of Big Island Veterans Camp for $25,000 under a contract for deed running from 6-1-1941 through 6-1-1951.

Tonka Bay Hotel

Page 204

Conversion to a resort hotel took place in 1883 with the formal opening on June 17th. The M. & St.L. Ry. branch line was also built in 1883 with service to the hotel beginning about August 1st.

The real estate and hotel buildings were acquired 11-21-1907 by the M. & St. P. S. Ry. from Thomas and Beatrice Lowry.

The same Electric Railway Journal article quoted in the Big Island Park section foregoing also contained comments about the hotel operation.

The largest hotel at Lake Minnetonka is the Tonka Bay Hotel located at Tonka Bay. It is some years old, but still is a very comfortable summer hotel and beautifully located. Its management is going to pass into our hands and we will be prepared to care for 400 persons under its roof very comfortably. Near the hotel, and part of the hotel property, is a modern roller skating rink which is a particularly favored resort for the cottagers, young and old, around the south shore. When we secure large picnic parties hereafter which will require hot meals or hotel accommodations in addition to the park privileges at Big Island Park we will be able to take care of them at Tonka Bay---. We will thus have the business of entertaining all the transient people we take to the lake---. There are also fine picnic grounds around Tonka Bay Hotel, and those who do not care to make the water trip to Big Island Park will be able to enjoy the car trip to Tonka Bay and play baseball, roller skate, dance and picnic---."

The Tonka Bay branch line lease with the M. & St. L. Ry. included the following real estate:

A parcel containing the dance hall;
Rotunda Reserve;
A parcel containing the loop track;
Lake View Reserve (lying South of the right-of-way);
Lots 17-18, Wildhurst.

The Minnetonka & White Bear Navigation Co. was given only such interest in the foregoing as "necessary or convenient to the maintenance and operation of amusement parks, hotel and navigation business".

The real estate conveyed to the M. & W.B. N. Co. in the 12-31-1910 re-organization comprised the following:

Hotel Reserve;
Onagon Reserve;
Lots 62, 63, 72, 77 and 78;
An area bounded by Onagon St., Wapeda St., Cedar St., and a line parallel to Minnekomin Ave.-Aspen St.;
An area bounded by Wapeda St., Cedar St., Park St., and Waseca Ave.;
A parcel containing the roller skating rink;
Two parcels identified by deed number D938.

After the closing of the hotel, disposition of the property took quite some time and the accounting records are not entirely clear as to how this was accomplished.

1912 Dance hall sold to W. O. Williams. Some furniture sold.
1913 Credits to the property account for disposals were: hotel $2,620 (January and February) and laundry $500 (February).
1914 Bathtubs and plumbing sold to Cleveland Wrecking Co. in February. 200 pairs of roller skates sold.
1916 Generator set sold for $275.
1919 Net credit to the property account for $328 marked "Big

Island Park and Tonka Bay Hotel-Excelsior Docks". 345 L.F. of scrap T rail used for reinforcing the cesspool was sold.

1922 Roller skating rink sold (July) for $1,100 to E. M. Armogast.

Various small parcels of real estate were sold in 1918, 1919, 1920, 1924 and 1925. In 1924 there was a debit of $384.60 to the real estate account.

Apparently the major portion of the property was sold in 1923 to Kohler and Bentzen; $22,481.20 was credited to the property account. This transaction was on a contract for deed; payments were being made during 1926 and 1927 but appear to have been continually slow. In 1933 the valuation record additions for the M. & W. B. N. Co. listed real estate transferred to it: Tonka Bay Hotel property, 14.208 acres, cost $17,160.36. Some real estate was sold in 1944 but the journals end with 1945 and give no hint as to when or to whom the re-possessed real estate was disposed of.

Page 205

The figures on this page were taken verbatim from TCRT Annual Reports. An analysis of the accounting journals and ledgers does not support these figures.

	Investment	Accumulated Deficit (*)
Steamboats 1907-1911	$275,785	$ 73,202
Big Island Park 1907-1911	281,472	14,679
Tonka Bay Hotel 1908-1911	96,759	12,344
Total	654,016	100,225

(*) including an allowance for interest paid on funds borrowed for construction.

The records available do not allow a reconciliation of the differences.

The express boats had demonstrated that they were splendid feeders for the rail lines, and as the boat routes trailed the shore line, a good "point to point" business had also been developed. The effects of the financial panic of 1907 and the economic recession which continued through 1911 probably heavily influenced the decision to close the park and hotel. While the steamboat operations showed annual losses, the revenues had not substantially declined, and reductions in operating expenses had considerably reduced the losses. Hotel revenues declined slightly from 1908 through 1910 while the park revenues steadily declined. In 1911 both hotel and park revenues dropped sharply, being almost non-existent for the hotel.

Steamboat Operations

Page 207

During 1907 the three-hour "Forty-Mile Lower and Upper Lake Trip" was operated each morning and afternoon.

Pages 210 and 212

Docks

Property conveyed to the M. & W. B. N. Co. in the 12-31-1910 re-organization consisted of one parcel, the Solberg's Point dock. The legal description was Lot 190, Auditor's Subdivision 141 (originally part of Lot 4) comprising 0.44 acres adjacent to the West right-of-way line of the M. & St. L. Ry. A concrete coal bin 20' x 50' x 56" high was built here in 1921. Apparently addditional real estate was leased from the M. & St. L. Ry. as the owned property was sold in 1927 and an M. & St. L. Ry. lease canceled at the same time.

The Zumbra Heights dock was acquired in 1913 from Calvin Goodrich. This was Lot 9, Auditor's Subdivision 86, comprising 0.86 acres of land and one boat house.

Page 212

Excursion boat service, on a charter basis, was still being offered as of April, 1920.

The accounting records indicate that express boat service was provided through the end of the 1926 season.

Special Insert after Page 213

THE RAPID TRANSIT REAL ESTATE CORPORATION

This is brief summarization of the real estate transactions of this subsidiary taken from the accounting and real estate records.

Real estate conveyed in the 12-31-1910 re-organization:

1. N 1/2 of E 1/2 Lot 47, Village of Excelsior, lying North of the M. & St. L. Ry. right-of-way at 3rd and Center Sts. Contained two cottages occupied by the Lake Minnetonka Div. dispatchers from May 20th through September 10th each year. Disposition and date not recorded.
2. Lot 34 (except the North 40 ft.), Brentwood, Excelsior Township. This was adjacent to the Tonka Bay branch line right-of-way to the North. Sold 8-1917.
3. Lot 9 (except the North 40 ft.), Wildhurst, including all buildings and improvements, then in the name of Willard J. Hield. (The north 40 ft. was the walkway from the Wildhurst Loop to the Wildhurst Dock.) Sold 1919.
4. Part of Lot 1 and all of Lots 2 through 7, Block 23, North

St. Paul Proper. Also part of Lot 1 in North St. Paul Land Co. Re-arrangement No. 1 in Block 1 North St. Paul Proper. No dispositions recorded.

5. Land adjacent to Wildwood Park. The agreement described two areas, 38.6 and 18.8 acres respectively, 57.4 acres total. The Drum & Co. valuation report of 1-1-1926 calculated this area at 56.397 acres. Disposition not recorded.
6. Part of Lot 7, Town of East Shore, Washington County. Sold 6-1912.
7. The old Stillwater Electric St. Ry. steam powerhouse property in Stillwater. Sold 6-1912.

Subsequent purchases:

8. Como Gravel Pit, St. Paul. 10 1/2 lots were purchased 9-1906 by SPCR. 6 1/2 lots were sold to the State of Minnesota 7-1914 and the remaining 4 lots deeded to RTRE Corp. 5-1924. 28 additional lots purchased by SPCR 8-1908 were also deeded to RTRE Corp. 5-1924. An additional 40 lots were purchased directly by RTRE Corp. in 1913. See page 64 of this Supplement for the disposition of this property.
9. South St. Paul Sand Pit, South St. Paul. Purchased by M. & St. P. S. R.R. in 1910 and deeded to RTRE Corp. 1915. Sold 1928.
10. Government Lot 2, Sec. 29, Twp. 30, Rg. 21, on White Bear Lake, purchased 1914. Disposition not recorded.
11. Twenty-three lots in five blocks of the Fifth Addition, North St. Paul, all adjacent to the right-of-way where it enterd North St. Paul. Disposition not recorded.
12. Six lots in five blocks of the Sylvan Park Addition, St. Paul, purchased 1919. This Addition was bounded by St. Clair, Pascal, Randolph, and the alley west of Saratoga. A house was built on each lot during 1919: the "Employee Homes Project". These were subsequently re-sold to company employees: one each in 1921 and 1922, and four in 1923. A small net loss was incurred on the entire program.
13. Lot 11, Block 26, Windom's Addition, Minneapolis, purchased 9-1923. This was adjacent on the North to the Girard Substation. A wye was built on this lot in 1923.
14. The Terminal Block,Minneapolis. The entire block bounded by 2nd Ave. S., 7th St., Marquette Ave., and 8th St. was purchased 6-1915 from the W. L. Harris Realty Co. for $1,100,000. It was intended to build a seven-track terminal station where all Minneapolis lines would run through or terminate.

After much correspondence with tenants of the existing buildings (and much intracompany memos as well) pertaining to rent collection and utility meter readings, the W. L. Badger Company was hired as the property and rental manager 1-1-1916.

TCRT was accused of buying the property from hidden profits and no construction was ever undertaken. The corner at 2nd Ave. S. and 8th St. was sold 6-1-1923 to the Business Women's

Club. During 1924 several smaller parcels were sold. The remainder of the property was sold October 29, 1925, to the Intersection Holding Co. for $1,000,000 ($400,000 cash and $600,000 contract for deed). This is the site on which the Baker Building was later constructed.

CHAPTER 6 EQUIPMENT

Minneapolis St. Ry. Horsecars

Pages 214 and 216

Six cars were purchased new for the first line in 1875 at a cost of $872 each, including freight. Two cars arrived in the city on August 20th from Duluth via the Great Lakes, and two on September 22nd.

Pullman's Palace Car Co., Chicago Shops, order records available today begin with number 500 dated 9-24-1886. Order 505 covered six closed horsecars built for stock. Four were sold to MSR 2-24-1887 numbered 195-198. The remaining two were sold to MSR on 3-24-1887 numbered 199-200. Order 545 dated 3-26-1888 covered 32 open horsecars for MSR numbered 201-232.

The mortgage bond trust agreement dated 1-15-1889 was the source of the figures of 218 horsecars, 1,018 horses and mules.

St. Paul St. Ry. Horsecars

Page 216

Four cars were purchased in July, 1872, from A. Wight, St. Louis, Missouri, for the first line. Purchase of two additional cars was authorized by the Board of Directors July 27, 1872.

At the time of the sheriff's sale, September 28, 1877, 15 horsecars and two snow plows were owned.

St. Paul City Ry. Horsecars

Pages 216-217

A report given the Board of Directors November 29, 1878, stated that 12 horsecars were then owned.

Purchases of additional horsecars were authorized by the Board of Directors: three new cars 6-17-1879; eight new cars 10-24-1879 for Spring, 1880, delivery.

On October 28, 1880, it was reported that 14 cars had been used to operate scheduled service. A planned increase in service requiring 20 cars would not be put into effect until Spring, 1881.

On February 13, 1882, the Board of Directors authorized Thomas Lowry to purchase two horsecars for the company at a cost of $700 each.

A mortgage bond trust agreement dated 4-1-1884 listed 79 horsecars, 162 horses and 293 mules. At 10-1-1884 when additional bonds were issued these same figures were used in the trust agreement. The mortgage bond trust agreement dated 1-15-1887 listed 93 horsecars, 607 horses and mules.

Pullman's Palace Car Co., Chicago Shops, order 519 dated 6-29-1887 covered 16 closed horsecars for SPCR numbered 129-144. Thus TCRT's 1904 index card on car 135 has an incorrect builder and date.

The 1888 directory listed 128 horsecars, 908 horses and mules. According to the Drum & Co. valuation report a total of 118 horsecars were owned during the horsecar period.

St. Paul City Ry. Cablecars

Page 217

A St. Paul city ordinance limited the maximum cable train length to one grip car with two trailers.

The three Selby Hill counterweight cars were rebuilt from 18 ft. open cable grip cars.

During 1905 the three counterweight "pushers" (sic) and all Selby Ave. electric cars were equipped with automatic couplers.

Original Electric Cars

Page 229

A work order dated August, 1902, covered the repair and repainting of 20 double end cars. This may be the total number of double end cars operated. See page 239 under 1905 pertaining to double end cars; work orders issued in 1905 covered (1) repairing and repainting 12 double end cars, and (2) equipping 13 double end cars with SRG motors and K-11 controllers.

Page 230

The revolving wood destination signs had <u>five</u> faces. Destination roll signs were first used in June, 1901, and were installed on

all double truck cars during 1902-03.

Page 236

As of 1902 327 Bemis single trucks were owned.

In September, 1902, old cars to be scrapped were being stripped. In May, 1903, two cars were sold to the Great Falls St. Ry., Montana.

During October, 1902, three Salters were made from condemned motor car bodies 179, 185 and 195. In December, 1903, car 183 was equipped for use as the Selby Sand Car.

Page 237

Work order descriptions provide information on cars 607-626.

1-1901 Overhaul Interurban cars; wire and mount Interurban cars for three and four motors.
9-1901 Overhaul and revarnish 21 (sic) Interurban cars.
3-1902 Rewire 19 American cars from two to four circuits. (This is the first mention of less than 20 American cars, indicating 607 met its fate between 1901-02.)
8-1902 Repaint and repair two American cars 618 and 623.
11-1902 Equip 618 and 623 with G.E. 57 motors geared equal to the same motors on cars 868-899.
7-1904 Standardize 19 old Brill trucks and W.P. motors.

Pages 237-238

The "North St. Paul Pups" were built in Pullman's Palace Car Co. Detroit Shops. The Rail Bond Test Car was fitted out during March and April, 1904.

Page 238

Information on the service equipment was obtained from work order descriptions.

Snow Plows

Apparently some of these were used as Snow Plows during the winter months and as Work Cars during the summer months.

1-1901 Remodel and mount Snow Plows.
3-1901 Work Car 4 altered for Snow Plow.
5-1902 Finish vestibule on Work Car 7.
4-1903 Remodel Snow Plow 20 for switching at the new powerhouse. (Main Steam Station)
4-1904 Dismount Snow Plow 18 for Storehouse Switch Car. Dismount Snow Plows and mount Open Cars. (Apparently trucks from the double truck Open Cars were

interchanged with the Snow Plows.)
12-1904 Install air brakes on Stillwater Snow Plow.
4-1906 Equip two Snow Plows for Work Cars.
10-1906 Rebuild Stillwater Snow Plow.

Work Cars

2-1902 Build two Work Cars for Track Dept. (W.O. 8261, 8263)
3-1902 Build two Work Cars for Track Dept. (W.O. 8271)
2-1904 Repair and place vestibules on Work Cars.

Supply Cars

4-1903 Change old Washburn Park car for temporary Storehouse use.
11-1904 Change trucks from car 874 to Supply Car 2.

Car Dispositions

Page 239

1904

April: place vestibule on one Jones car sold to A. B. Robbins.
June: dismantle closed cars.

1905

The three cars sold to Danville went to Danville, Illinois.

Three cars sold to Terre Haute, Indiana, were overhauled, equipped with vestibules, and fitted with cane seats during November for the sale.

One single truck Flat Trailer was built during March.

1906

Twelve Trailers were rebuilt for Ballast Cars during March.

Car 789 was rebuilt specifically for use on the Lake Minnetonka Division.

The journals indicate that four cars, 732-735, were sold to the North Side St. Ry. in May for $1,250 each. However this entry was reversed in October.

J. B. Watson was a used streetcar dealer. Cars 689-690 went to the Wausau St. Ry., Wisconsin.

Page 240

1907

Cars 640 and 686 went to the Wausau St. Ry.; 339, 408 and 413 to the Henderson Traction Co., Kentucky; all during May.

Rail grinding equipment was installed on one car in October.

1908

The 18 cars listed as sold, following the Marshalltown sale, went: 403 plus seven others to A. E. Partridge, a used streetcar dealer; and ten cars, bodies only, to the Schuylkill Valley Ry., Pennsylvania.

1910

The three cars sold to a Texas R.R. went to the Denison & Sherman Ry., Texas.

1912

As of 1-1-1920 Supply Car 2 had Brill trucks, four G.E. 67 motors, and one K-6 controller.

Page 241

1914, 1916, 1917

The disposition of the 608-626 series cars was taken from the card file maintained by the Master Mechanic's office. The cash receipts journal entries contains some differences.

613 and 620 were sold 7-1914 to A. B. Saunders Co.

Bodies only were sold to the Kansas City, Lawrence & Topeka Ry.: 616 12-1916; 610, 622, 623 during January through April, 1917.

Charles City Western Ry. 52, ex 621, remained in service until scrapped in 1957.

Car Building Programs

Page 243

Private Car

The Drum & Co. valuation report of 1-1-1916 information:

Floor coverings: Brussels carpet, one Brussels 24" x 34" rug, one manila 1 1/2" x 28" x 45" foot mat, one corrugated rubber 1/8" x 31" x 38 1/2" mat, and one wire 14" x 16" mat.

Seats: 10 wicker chairs with cushions, 22 oxidized steel-frame

chairs, and one upholstered davenport. Seating capacity 36 persons. Four foot stools. Two cushions 8" x 16" x 16".

Curtains and draperies: 20 35" x 38" curtains on rollers, and 46 draperies on 23 5/16" brass rods.

Lights: 29 110 and 120 watt Mazda lamps.

Other furnishings: one mahogany table consisting of two hinged leaves 24" x 42", each supported by two hinged legs 24" x 42"; four mahogany folding tables 24" x 32"; one Seth Thomas 10" diameter brass and nickel clock; one Taylor Bros. nickel trimmed thermometer; and six nickel-plated cuspidors.

Kitchen appliances: one G.E. electric stove, one G.E. electric oven, and one G.E. electric boiler.

Kitchen utensils: one 1-gallon Griswold aluminum coffee pot, one 1-gallon Wagner Sydney aluminum tea kettle, one 2-quart aluminum double boiler, one 3-gallon dish pan, two 1-quart Mason jars, one 1 1/2" x 9" x 16" mahogany bread board, twelve 1/2-gill liquor glasses, ten 1/2-pint water glasses, two cork screws, four turkish towels, and Bromo-Seltzer.

Miscellaneous: one fire extinguisher, one broom, one deck of Bicycle 808 playing cards, and four 5/8" transparent dice.

An early floor plan showed a toilet compartment with fixtures adjacent to the left rear bulkhead. No listing of toilet fixtures can be found in any of the valuation reports.

Pages 248-249

Notes 2 and 3: an unspecified quantity of W.P. 50 motors had been acquired second-hand. A work order dated 1-1901 provided for their rebuilding.

Note 7: Bemis M.T. trucks were rebuilt to Bemis C.B. trucks according to various work orders:

5-1901	Rebuild Bemis trucks.
11-1901	Equip Minnehaha cars (789-796 series?) with G.E. 57 motors.
12-1901	Change trucks on 37 ft. cars (868-899) for four motors.

Note 10: A work order dated 4-1904 authorized construction of one double deck car. In 6-1905 additional costs were incurred for "double deck on car 1092"; these costs were probably for erecting the canopy over the seats. (See page 252.)

From March through June, 1904, new carbodies of the 992-1041 series were temporarily stored at East Side and Midway Stations. Again, in October, 1904, and January-February, 1905, new

carbodies of the 1042-1091 series were temporarily stored at East Side Station.

Wire Cars 3-5: it seems the Master Mechanic's data sheet and file card are incorrect as to the building date on 5. The work orders were dated as follows:

4-1905	Build one Wire Car. (3 was completed 5-11-1905.)
6-1905	Build one Wire Car for St. Paul. (4 was completed 8-15-1905.)
5-1908	Build one Wire Car. This has to be 5 so the correct completion date is 5-28-1908.

Note 19: 34 was not originally built for the Lake Minnetonka Division. 789 was rebuilt in 1906 for this purpose. 34 was ordered and built as a Delivery Car. A work order dated 5-1909 covered altering "Supply Car 1" to a Baggage Car, at which time number 34 was assigned.

Notes 20 and 21: work orders covering the double deck car building program were:

10-1905	8737	Build one double deck "Tonka" car. (1145)
11-1905	8745	Build 20 carbodies. Changed to double deck cars 3-1906, then changed back to standard cars 8-1906. (1146-1165)
1-1906	8750	Build 20 standard carbodies. (1166-1185)
2-1906	8759	Build 10 double deck cars. Changed to standard cars 8-1906. (1186-1195)
8-1906	3379	Equip car 1146 with double deck. A later description reads "equip one car with double deck". Only small amounts were charged to this work order so most likely the upper deck was never completed.

Note 25: the crane was manually operated until 1910 when it was electrified by the installation of two 7 1/2 h.p. motors.

Pages 246 and 255

The break between carbuilding at the 31st St. Shops and the Snelling Shops was based on the experience of a TCRT employee at the time. The construction journals list work order 4090 dated 5-1907 for moving car underframes to the new shops. Later entries indicate that all costs of moving to the new shops were charged to this work order. Thus it is possible that part or all of the underframes for cars 1266-1290 were fabricated at the 31st St. Shops.

Page 256

Other Service Equipment

Shop Trailers 84-93 have a complicated background. The construction journals provide limited information.

Order Date	Qty	Type	For
11-1907	3	Steel	Snelling Shops Dry Kiln
11-1907	1	Wood	Snelling Station Coal Car
11-1907	1	Steel	Snelling Station Ash Car
12-1908	1	Steel	E. 7th St. Station Ash Car
11-1910	1	Steel	Ash Car (one Bemis truck)
1-1911	1	Steel	Snelling Station Ash Car (one Bemis truck) (similar to Snelling Shops car)
Total	8		

The 1-1-1916 Minneapolis St. Ry. valuation report listed only one Refuse Car Trailer (Dirt and Ash Car, Gondola type). 16' 0" long overall with a 15' 0" long body, 6' 7" wide, three 16" x 4' 9" x 2' 8" high hinged sections on each side, and equipped with one Special truck.

The 1-1-1922 MSR and SPCR valuation reports listed seven single truck Trailers to which numbers were assigned for valuation record purposes about 1927-1928.

84-85 Flat Cars, sideboards for Gondola, 23' 9" long.
86 Closed Sawdust Car, 17' 9" long.
87-88 Flat Cars, sideboards for Gondola, 23' 9 1/2" long. (88 was listed in 1939 as 23' 9 1/2" long, 6' 6" wide, with sideboards 3' 0" deep, 450 C.F. capacity.)
89 Flat Car, sideboards for Gondoal, 16' 1" long.
90 Refuse Car Trailer as per the MSR 1-1-1916 valuation.

Additions through 1929 were:

91 Gondola Car, 15' 0" long, 6' 6" wide, 2' 8" sideboard depth, capacity 250 C.F.
92 Gondola Car, 10' 8" long, 8' wide, 2' 8" sideboard depth, capacity 225 C.F., mounted on one Brill 04 truck (no motors), for handling coal at Nicollet Station.
93 Gondola Car, 16' 0" long, 6' 6" wide, 2' 8" sideboard depth.

Page 258

Note 57: the three sample cars were each painted in the state university colors of the builder. 375 "Minnesota" was painted gold with maroon trim. One of our contributors recalls seeing cars of the 1-4 series in Stillwater similarly painted. Comparing photographs of 375 on page 544 with TCRT 1-4 on page 265 and DSR 301-305 on page 401 indicates all three color schemes were identical.

Page 268

Classification Chart: typographical error corrections:

Class	Platform Drop Front	Rear
B-3	S	*
B-5	S	5 1/2"
C-3	S	5 1/2"
D-7	S	5 1/2"

8" drop platform: 1091-1111

Equipment Classification System

Page 269 and Roster Page 256

A Mechanical Dept. tracing has been located which lists the complete classification number for each car. The tracing is undated but is complete through cars 2004-2005 and 1-4. The classification numbers for the lightweight cars are:

Class M-9 2000-2001
Class N-9 2002-2003
Class O-9 2004-2005
Class P-10 1-4

A pencil notation states that "Class P = One Man Cars".

It is my guess that 2006-2030 were Class P-11 when built. When 2000-2005 were rebuilt to conform to 2006-2030 in 1928-29 they were reclassified:

Class P-12 2004-2005
Class P-13 2000-2001
Class P-14 2002-2003

Equipment Construction Details

Page 273

Trolley Bases

The first trolley poles were made of wood as many of the early photographs attest. Beginning in May, 1902, trolley bases were changed to accommodate steel trolley poles.

Heaters

Hot water heaters on the first cars built were located in the carbody proper. See the photograph of 777 on page 247. Beginning in February, 1901, these heaters were relocated to the front platform.

Railroad-style Pilots

The first such pilot was installed on 1112 9-1906. Beginning 12-1906 18 cars were to be equipped with pilots and nose plows. This order was later increased to 28 cars. The Private Car received a pilot 5-1908. Cars 1159-1160 received pilots 6-1908.

The 37 ft. cars at Owen St. Station, Stillwater, received pilots and nose plows 12-1909. Some (all?) cars of the 773-785 series on the Stillwater Div. received pilots.

Classification Lights

The first electric tail lights were installed on 608-626, 737-788 and 797-1309 beginning 3-1910.

A work order dated 5-1908 provided for cars to be equipped with "side lights and brackets":
Minnetonka Div.: 19 cars and 1 Wire Car. The order was increased to 21 cars the following month.
Stillwater Div.: 15 cars. The order was increased to 17 cars the following month.

Rebuilding and Modification Programs

Pages 284-287

Steps and Gates

Information obtained from work orders:

5-1901	Changed steps and gate rods on 40 or 42 cars.
9-1904	One car, presumably 769, was equipped with a drop rear platform.
4-1905	Six Stillwater cars, 773-778, were equipped with an 8" drop rear platform.
5-1905	45 cars were rebuilt with the 8" drop rear platform: 737-768, 770-772, and 779-788.
7-1905	Double gates and steps were installed on 900-904 and 942-949.

Service Equipment Modifications

Extension cabs were added to certain Work Cars:

9-1910	11
12-1910	18
12-1916/1-1917	15 and 17
3-1917	55
1917	16
1929	8

A folding tower was installed on the Stillwater Wire Car 3-1911.

Sand Car 44 was converted to an Oil Car 5-1912.

Built " and erected a tower" on Work Car 48 10-1912.

Three Work Cars were equipped for "hauling sand" 10-1921: 14, 16, and 18.

Auger motors were installed on Sand Cars 43-45 in 1922.

Cars 58 and 61 were rebuilt in 1925 for "hauling track materials".

Work Car 47 was rebuilt in 1945 with four steel dump boxes and two hoists. In 1946 a steel winch, five ton capacity, was installed on the car to lift the boxes.

The original crane on Crane Car 50 was made by the Brown Hoisting Machinery Co. The replacement crane was an Orton model 8.

Rail grinding equipment on car 96 consisted of four 10" air brake cylinders connected to 20 3" x 4" grinding stones. This provided 240 sq. in. of grinding surface under 92 lbs. per sq. in. pressure with 70 lbs of air pressure in the cylinders.

Passenger Car Rebuilding and Modifications

Cars 992-993 were converted back to single end operation during 1914-15.

Car 1788 was fitted with the front exit sliding door and step during February-March 1917. The hot air heating system was installed in 1919.

As of 1-1-1922 the Private Car was being used as an Instruction Car. According to the valuation report it then had no motors, controller or air brake equipment. A 3-1919 work order had provided for equipping an Instruction Car for the Employment Bureau. Thus it appears the car was not intended to be operable, but only for classroom type training.

Skirts were installed on all front exit "gate" cars during 1929-1931. (1254, 1266-1328 received them when rebuilt in 1928.)

STOP 10 FEET BACK was painted on the exterior right rear platforms of 723 cars during 1937.

Truck Identification

Page 292

A total of 72 sets of Twin City trucks were manufactured.

Four Baldwin Locomotive Works truck blueprints have been found which solve the mystery about Baldwin #3 trucks.

BLW 123	2-1904	Baldwin #1 truck.
BLW 167	4-1905	Baldwin #2 truck for G.E. 73C motors.
BLW 338	5-1907	Baldwin #3 truck for G.E. 87 motors. It was identical to the Baldwin #4 truck except that the swing link connection at the truck bolster

to transom is identical to that on the Baldwin #5 truck.

BLW 188 12-1905 Baldwin #4 truck.

The BLW number is their truck identification number under their earlier classification system.

The Baldwin #3 trucks were purchased in 1906 for mounting G.E. 87 motors used on cars 1146-1195. Baldwin #4 trucks were substantially identical but for mounting G.E. 73C motors. The latter were first purchased in 1907 for cars 1260-1265. When the G.E. 87 motors were replaced with G.E. 73C motors the truck designation was changed from #3 to #4. See Note 5 on page 296.

Equalizer bar noses are illustrated in the photographs. The short nose is typified by those on the Twin City #5 truck in the photo on page 397. The long nose is best shown on the Twin City #9RB truck in the upper right photo on page 293.

Fifty sets of Twin City #9 trucks were manufactured during 1918-19. All 100 trucks were equipped with newly purchased G.E. 200 motors. Six sets of these trucks with motors were shipped to the Duluth St. Ry. in 1919.

Shifting Trucks and Motors

Pages 294-297

Information obtained from work orders is interesting.

1-1901: Wire and mount suburban cars with Twin City trucks.
2-1901: Mount 40 Twin City trucks with G.E. 57 and W.P. motors.

12-1901: Change trucks (Bemis) on 37 ft. cars (868-899) for four motors.

Apparently G.E. 73 motors were tried on the Stillwater cars for a short time during 1902. Expenditures for changing motor leads, wheels and axles on seven cars were incurred from January through July, 1902. The motors were paid for in April and May but then returned to G.E. in June, 1902.

7-1903: Dismount and change cars with Twin City trucks.

Twin City Work Car trucks were first manufactured 4-1904 when six sets of special work car trucks with G.E. W.P. 50 motors were completed; four sets went on Work Cars 7-10. (These cars received air brakes 2-1906.) Four additional trucks were ordered 10-1908.

Note 4: work orders dated 9-1904 and 11-1904 covered the rebuilding, repainting, rewiring, remounting, and air brake installation on cars 868-899.

11-1904: Brill 02 trucks with G.E. 67 motors were removed from 908-939 and replaced with Baldwin #1 trucks with G.E. 70 motors.

Note 5: 52 sets of G.E. 87 motors and 104 Baldwin #3 trucks were purchased 12-1906 for cars 1146-1195. Five sets of G.E. 87 motors were purchased 4-1907 and mounted on five extra trucks 11 and 12-1907. One set of Baldwin #3 trucks with G.E. 87 motors was sold to the Duluth St. Ry. 12-1907.

Six sets of G.E. 73 motors were purchased 7-1907. The G.E. 87 motors were dismounted and truck changes made from June to November, 1909. During July and August, 1909, 13 sets of G.E. 73 motors were purchased. As of 5-25-1922 the cars with Baldwin #4 trucks, G.E. 216 motors, and K-37 controllers were 1164-1182 and 1371-1375.

Experimental work on a mechanical reverse for Type M control was undertaken on car 1264 in October, 1907. This proved successful so in March, 1908, 68 cars were to be so equipped: 1112-1123, 1145-1195, 1260-1263, and 1265.

Note 6: K-37 controllers replaced K-14 controllers on cars 773-785 8-1909.

Note 7: As of 5-25-1922 the 18 Snow Plows received Baldwin #4 trucks with G.E. 73 motors and C-6 controllers (Type M control) from cars 1147, 1149-1156, 1158-1161, 1163, 1255-1256, and 1258-1259 which then received Baldwin #4 trucks with G.E. 216 motors and K-43 controllers.

Note 9: 128 individual trucks were retired: 70 Brill 04 and 58 Baldwin #4.

Notes 11 and 12: All cars had the LB-2A control device. Cars 1166-1185 had K-35 controllers. Of the 30 cars in the 1186-1218 series, 21 received G.E. 203Q motors and 9 received G.E. 203A motors, all acquired second-hand.

Wire Car 5 received a K-37 controller in 1930.

Work Car 13 received Twin City #5 trucks with G.E. 70 motors from a passenger car scrapped in 1938.

Note 15: In 1947 G.E. 216 motors from car 1484 went on car 1230.

Note 16: This is the detailed list for the 1949 shifting.

Work Car No.	Passenger Car Number Motors Only	Trucks and Motors	Work Car No.	Passenger Car Number Motors Only	Trucks and Motors
7	1358		54	1380	
9		1379	55	1443	
10		1413	56	1378	

14	1486		58	1438	
16		1431	61		1421
18		1332	62		1356
19		1471	64		1333
46	1463		65		1474
48	1359		66		1336
49	1354		67		1371
51	1444		68		1455
52	1453		69		1435
53	1399				

It was also intended, but never done, to transfer trucks and motors from 1458 to 1136.

Maintenance and Rehabilitation Programs

Page 297

As of 1944 each car was inspected every 14 days as to lubrication and condition of trucks, controller, line breaker and pneumatic equipment.

Page 299

The photograph of car 1842 on page 164 shows that it did receive steel-plated sides and ends.

Disposition of Equipment

Pages 301-303

1918

Car 899: the coal mine was located at Bryant, Illinois. Former TCRT General Manager Willard J. Hield was an official of the coal company. TCRT billed the Cripple Creek Coal Co. $80,372 in August, 1918, for the electrification of their coal mine trackage. The car itself was billed to Willard J. Hield in October, 1918, for $4,500.

1925

The underframe of Work Car 12 was sandblasted and stored in the Mechanical Dept. storage building. The trucks and motors were sold for scrap.

1936

Trucks from 200-224 were removed and replaced with spare Brill and Baldwin trucks plus the Bemis trucks from Work Car A-13 when the trailers were moved for scrapping. In 1938 eleven #12 truck frames built in 1925 for cars 1-4 plus three spare trucks were

scrapped together with two #11 truck frames which were obsolete. Equipment from cars 1-4 was re-installed in eleven #11 truck frames salvaged from 200-224. In 1939 forty #11 truck frames formerly under 200-225 were scrapped.

Underframes of 1610 and 1629 were sandblasted and stored in the Mechanical Dept. storage building. Trucks and motors were retained for spares.

1952

According to valuation record Authorizations, Thew Electric Shovel 60 was actually retired in 1948.

Main Steam Station Equipment

Page 305

The original crane was a Brown Hoisting Machinery Co. model 315 with a 54 cu.ft. clamshell bucket. Equipment consisted of one G.E. C.O. 2001 80 h.p. electric motor and one R-27 controller. This crane was retired in 1948.

An American Hoist & Derrick Co. type 258 crane was purchased 9-1924. The clamshell bucket capacity was 2 cu. yds. TCRT performed the electrical and mechanical work necessary to make this crane electrically powered.

An air-operated side-dump car was purchased second-hand in 1942 from a steam railroad. Received on October 6th, it was used for transferring coal from the new #7 coal bin to hoppers in the building.

A new American Hoist & Derrick Co. model 825-E, 25 ton, 75 h.p., electric locomotive-crane was acquired during the winter of 1946-47.

Gondola Trailer 6 was retired in 1947.

Steamboats

Page 308

The 1905-06 Express Boats were designed by Royal C. Moore of Wayzata and built under his supervision in the 31st St. Shops. The engines were manufactured by the Marine Iron Works Company, Chicago. They were triple expansion, vertical, condensing, fitted with balanced piston valves on the high and intermediate cylinders, and double-ported slide valve on the low pressure cylinder. Steam was furnished by a Roberts Marine boiler also manufactured by the Marine Iron Works Co. The boiler was placed

in the same compartment with, but forward of, the engine. The draft was natural. They were fitted with (1) a Jet condenser, (2) an independently steam driven vacuum air pump, (3) auxiliary steam driven boiler feed pump, (4) hand test pump, (5) and an independent exhaust steam feedwater heater. Approximate weight of the entire power plant was 20,500 lbs.

One pile driver and several scows were built 2-1907 for the dock repair crew. Several docks were also built for private persons on the lake.

The ferry boats were dismantled, beginning in July, 1912.

"Puritan" and "Plymouth" were dismantled during 1915 and 1916. Accounting entries recording this process were:

9-1912	Canopy from "Puritan" sold.
12-1914	One boiler sold for $800.
9-1915	Labor cost dismantling.
11-1915	Three lighting sets sold.
2-1916	One 48" x 106" vertical steam boiler sold.
6-1916	One steam boiler sold.
8-1916	Labor cost dismantling. One 84" x 120" steam boiler sold. Net proceeds from sales of salvaged materials was $985.

"Mayflower" was dismantled during December, 1916.

According to the construction journals "Como", "Minnehaha", "White Bear" and "Hercules" were dismantled from April through June, 1926. The Master Mechanic's records give the year as 1925 but since the journals reflect cash transactions the 1926 date is correct.

SECTION II

DULUTH-SUPERIOR TRACTION CO.

Page 315

The Superior SUNDAY MORNING CALL of August 14, 1887: "Three handsome new streetcars for the Douglas County Street Railway arrived here Wednesday. They were manufactured by Robinson & Hitt of Waterloo, Iowa, and are finished up in first-class style. They will be put into service Monday." Their eventual disposition is unknown. They are not referred to when the company began another start-up operation two years later with four horsecars purchased new from Pullman's Palace Car Co.

Page 317

The Duluth-Superior Traction Co. was incorporated July, 1894, at Elizabeth, New Jersey, with capital stock of $2,000,000 by John H. Davis, New York City; Frank Bergen, Elizabeth, N.J.; and Edward V. Douglas, Philadelphia.

Page 320

Motor Line Improvement Co.

There were two large cemetaries, Forest Hill and Park Hill, on the new line. The primary factor in the road's construction was the promotion of real estate sales in Hunter's Park and Woodland by architect/promoter Ronald Hunter.

Page 339

Reports dated June, 1890, stated that contracts for electric railway lines had been let to (1) electricity, Thomson-Houston Co.; (2) engines, E. P. Allis & Co.; and (3) rails, Johnson & Co.

CHAPTER 2 TRACK CONSTRUCTION

Page 342

1901

The track added in 1906 formed a wye off Oneota St. at 17th Ave. W.

Page 360

Track Mileage	Duluth	Superior	Total
1926	83.67	28.69	112.36
1927	83.92	28.69	112.62
1928	84.56	28.80	113.36

CHAPTER 6 EQUIPMENT

Pages 384-385

Notes 2 and 3

Two payment vouchers to the LaClede Car Co., St. Louis, Mo., covered freight charges for cars shipped to Duluth in April and May, 1892. Four cars, 100-103, were shipped in April. Four cars, 112, 114, 118, 127 were shipped in May. Both vouchers carry the notation "Credit Equipment A/C Superior St. line".

DSR ordered cars in January, 1892. These eight cars may have been available from canceled orders of other companies and were shipped to Duluth as is. The 12 newly built cars were not received until July, 1892. The total of 20 cars would need to be numbered 47-66. (The Northern Car Co. open car for the Highland Ave. line was number 67.)

The book 100 YEARS OF CAPITOL TRACTION by LeRoy O. King, Jr., contains a photograph on page 46 of Brightwood Railway Co. car number 10 which is identical in every respect to Interstate Traction Co. (Park Point) cars 1-4. See photograph on page 335 of our book. Brightwood Ry. 10 was a 16 ft. closed motor car built by LaClede Car Co. in 1893 according to their roster. The obsolete features of the cars together with lack of vestibules suggest the Interstate Traction Co. cars were <u>not</u> new in 1899. Rather it appears they could be four of the cars DSR purchased in 1892 described in the last paragraph on page 97 of this Supplement, probably for the real estate promotion lines then under construction. As the line on Park Point was a summer only operation at this time the lack of vestibules would not be a problem. We speculate that DSR 63-66 were sold to ITC in 1899 as their 1-4.

Notes 11 and 14

Information from Pullman's Palace Car Co. order books:

Shipping Date	Order Number	Order Date	Plan Number	Car Numbers	Note
4-22-90	649	2-18-90	428E	103, 104	
7-05-90	665	3-22-90	428E	105	(a)
12-10-90	609	12-01-90	332G	4,5,106,107	(b)
12-10-90	610	7-16-89	332G	6	(c)
12-03-91	699	11-07-91	563A	108,109	(d)

(a) Exterior colors were green and white.
(b) The order was originally for seven closed motor cars, all Plan 332G. As DCSR purchased only four cars apparently this order had been placed originally by another company and later canceled.
(c) This order was originally for two closed cable grip cars wired for electric operation, placed by the Union Electric Ry. Co., Sterling, Illinois, and subsequently canceled.
(d) Exterior colors were emerald green and white.

Page 393

Date of disposition unknown: car 34 was destroyed in the Woodland carhouse fire on 11-16-1894.

Page 394

Table 2: delete the word Snelling under TCRT Shops for cars 279-284. Cars 280-283 were built in the 31st St. Shops wile 279 and 284 were built in the Snelling Shops.

Page 396

Note 17: car 286 was also equipped with snow plows.

Page 400

The photograph of Park Point Traction Co. Tower Car 13 indicates that the information in Table 3 on page 394 and Note 19 on page 396 is incorrect. A closer examination of construction details leads to the conclusion that this car is an 1891 Northern Car Co. product from the Superior system, either 110 or 117. (110, 117 and 122 had been acquired for the summer-only amusement park traffic.) A complication is the lack of vestibules; apparently not all the DSR and SRTR cars were vestibuled as some records lead us to believe.

Page 402

Table 5: 1/39 should read 1/139.

Page 407

The photograph of Snow Plow 3 was taken on 7th Ave. E. near E. 9th St.

SECTION III

THE SMALLER STREET RAILWAY SYSTEMS

GRANITE CITY RAILWAY
ST. CLOUD

Page 421

Map additions: a map issued in 1920 by the Bradley Engineering Service shows that track was also located on:

11th St. from 5th Ave. to 3rd Ave.;
16th Ave. from 3rd St. to 5th St. (the new Great Northern Ry. depot); and
33rd Ave. from 3rd St. to 5th St. N.

Page 424

A photograph taken at the ball park in the 1890's on a weed-grown

right-of-way shows cars lettered for the St. Cloud Street Car Co. Three single truck, closed, deck-roof, six-window body cars, and one single truck, open, turtle-back arch roof car; all have the old-style trolley base. No numbers are visible.

The former Buffalo cars were probably numbered 90-93. One was used on the Sauk Rapids line in the late 1920's.

100-101 were single truck passenger cars built by St. Louis Car Co. during 1916, order 1083 dated 1-28-1916.

80-81 were built or rebuilt by St. Louis Car Co. under their order 1147 dated 5-16-1917. The description on the order was "repair four cars" but listed only the two numbers. This may be the source of the Electric Railway Journal entry for four cars ordered in 1918.

WINONA RAILWAY & LIGHT CO.
WINONA

Pages 425-429

The following paragraphs are a complete re-writing of the Winona history.

The Horsecar Era

The Winona City Ry. was incorporated in May, 1883, by T. T. Hayden, John A. Mathews, Royal D. Cone, C. H. Porter and Charles Horton. Offices were at 119 Center St.

A horsecar line was constructed during 1883 from E. 3rd and Chatfield Sts. on 3rd St. West to Johnson St., South on Johnson to 5th St., and West on 5th St. to the Winona Wagon Works at the C. M. & St. P. R.R. crossing. This was known as the "Main" line. Eight new horsecars (1-8) were purchased from Brownell & Wight, St. Louis, and operation began December 25, 1883. A second line, required by the franchise, running from the C. M. & St. P. R.R. depot at Center and Mark Sts. to the C. & N.W. Ry. depot at 2nd and Huff Sts., known as the "Depot" line, opened December 29, 1883. Sidings were located:

On	Between
W. 5th St.	Ewing and John Sts.
W. 5th St.	Harriet and Wilson Sts.
W. 3rd St.	Johnson and Center Sts.
E. 3rd St.	at Kansas St.
E. 3rd St.	Carimona and Zumbro Sts.

A horsecar barn was located at E. 3rd St. and Mankato Ave., one block West of the East end of the "Main" line. The stable measured 54' x 90' with single stalls for 36 horses. The carhouse

measured 30′ x 100′, contained a transfer table, and had a capacity of 14 cars.

Horsecars 7-8 were the first to arrive, November 24, 1883. Intended for the "Depot" line, they were painted canary yellow with cardinal red panels under the windows, and lettered DEPOTS, POSTOFFICE AND HOTELS. Horsecars 1-6 arrived next, November 29, 1883. They were painted canary yellow and white for the "Main" line and lettered EAST THIRD, POSTOFFICE ADN WEST FIFTH STREET. All eight cars were double end, 12 ft. long, had ventilating roofs, and seated 16 persons. Seats were of perforated natural wood and the ceilings varnished natural wood.

As of 1890 the company owned 4.82 miles of track (3′ 6" gauge), 10 horsecars and 36 horses. Track construction consisted of 27 lb. strap rail spiked to wood stringers on wood cross ties.

The Electric Car Era

Corporate History

The Northwest Thomson-Houston Co. purchased a controlling interest in the company with electrification as the objective. This company had also acquired the St. Cloud City Street Car Co. for the same purpose. Electrification was completed in January, 1892. Materials and supplies left over were shipped to St. Cloud for use in the electrification there. The Northwest General Electric Co. succeeded the Northwest Thomson-Houston Co. later in 1892; a subsidiary, the Winona General Electric Co., furnished commercial and residential power and lighting in Winona. Financial results were unsatisfactory and receivership resulted February 19, 1895.

Winona Railway & Light Co. was incorporated in March, 1896, and purchased the property and equipment of the Winona City Ry. and Winona General Electric Co. at the foreclosure sale held April 13, 1896. Most of the capital stock was owned by easterners. By 1903 the United Electric Securities Co. of Boston owned the controlling interest. Operations continued to be financially unsatisfactory. During July, 1904, a financial re-organization was effected to write off amounts previously advanced by UESC to cover past operating deficits.

First mention of an interurban line between Winona and LaCrosse was noted in December, 1906. The LaCrosse & Winona Traction Co. was incorporated in Minnesota during February, 1907. On July 1, 1907, the LaCrosse Water Power Co. acquired the Winona Railway & Light Co. and began actively planning construction of the interurban line. However announcement came in February, 1910, that the proposed line probably would not be built supposedly because of Federal legislation prohibiting electric railways from making through rates with steam railroads and water

carriers. The real reason was the financial problems of the LaCrosse Water Power Co. Bondholders petitioned the court in July, 1911, to appoint a receiver. By August 24,1911, this had been accomplished.

Wisconsin Railway Light & Power Co. was incorporated in December, 1912, to acquire the LaCrosse Water Power Co., LaCrosse City Ry., and Winona Railway & Light Co. These acquisitions were completed by January, 1913. Headquarters were located in Milwaukee in the same office building as the Wisconsin Public Service Co. Clement C. Smith was president of both corporations. In January, 1926, the corporate name was changed to Mississippi Valley Public Service Co.

MVPS became a large electric power utility and eventually got out of the street railway business. The last streetcars ran in Winona during 1938 and LaCrosse during 1945.

Track Construction

Electrification was begun in 1891. Regular electric operation commenced January 21, 1892, on the "Main" line from W. 5th and Jackson Sts. via W. 5th St., Johnson St., and 3rd St. to the carhouse at E. 3rd St. and Mankato Ave. Sidings were located on:

W. 5th St. between Harriet and Wilson Sts.;
E. 3rd St. between Market and Franklin Sts.

The "Depot" line opened January 29, 1892, from Center and Mark Sts. to 2nd and Huff Sts., via Center St., 3rd St., Johnson St., and W. 2nd St.

E. 3rd St. was paved during 1893 so the sidings on the "Main" line were relocated to allow more frequent headway. The new locations were on:

W. 5th St. between Olmstead and Dacota Sts.;
W. 3rd St. between Johnson and Center Sts.; and
E. 3rd St. at Kansas St.

Necessary track work was completed in September.

In August, 1897, the siding on W. 5th St. was relocated to between Harriet and Wilson Sts. However in November, 1898, it was again moved, to the previous location. In October, 1898, track was abandoned on E. 3rd St. from Carimona St. to Mankato Ave.

During 1900 the "Depot" line was abandoned except for the track on Center St. from 3rd St. to Howard St. The "Lake" line was constructed on Howard and Dacota Sts. from Center St. to Lake Winona. One car began operation from 3rd and Center to Howard and Dacota November 17, 1900. Track was subsequently extended to Dacota and Mill Sts. A wood trestle was built across the lake and the line extended over this trestle, ending at a platform on the South end of the lake adjacent to the Chicago

Great Western Ry. track. First cars over the trestle operated June 30, 1901. A siding was located on Dacota St. a short distance North of the lake as it was planned to extend the line to Bluffside Park and beyond. A siding was also located on Center St. between 3rd and 4th Sts. Originally the landing at the South end of the trestle could accommodate only one car. During August, 1901, platforms with railings were built on both sides of the trestle long enough to allow three additional cars to load and unload passengers.

The 1902 U.S. Census reported 4.50 miles first main track, 0.15 miles sidings, for 4.65 miles total track.

As it was decided not to extend the "Lake" line, the siding on Dacota St. was removed during 1903 and re-installed on W. 5th St. between Cummings and Vila Sts. Also during 1903 track was extended on W. 5th St. to Lee St.

During 1906 track was built on E. 3rd St. from Carimona St. to High Forest St., on High Forest St. to Sanborn St., and on Sanborn St. to Center St. Sidings were located on:

E. 3rd St. between Carimona and Zumbro Sts.; and
Sanborn St. between Center and Lafayette Sts.

This track was partially opened in September and the remainder in October. During October, 1906, E. 3rd St. was rebuilt for double track operation (see map) between Center and Johnson Sts., and the eastbound wye curve installed at 3rd and Center Sts.

The siding on Center St. was extended two blocks to Broadway during 1907. The 1907 U.S. Census listed 6.37 miles first main track, 0.15 miles sidings, 6.52 miles total track.

During 1908 the siding on Center St. was again extended, from Broadway to Sanborn St., thus making double track on Center St. from 3rd to Sanborn Sts. During 1909 a branch line to the ball park, formerly the county fairgrounds, was built. In November, 1910, it was proposed to relocate the siding on Sanborn St. to between Laird and Chestnut Sts.

The Lake Winona trestle had been condemned as unsafe for streetcars "some time ago" as of April, 1912. The rails were removed beginning in June, 1912. It was later planked over for use as a footbridge after the city purchased it in May, 1914.

In October, 1913, the company was seeking permission from the city to relocate the siding on Howard St. to between Main and Johnson Sts.

Track measurements as of January 1, 1916.

	First Track L.F.	Second Track L.F.	Sidings L.F.
"Main" line			
3rd and Center to 5th and Lee	10,633		
Fairgrounds branch	950		
3rd, Center to Johnson		629	
5th, Cummings to Vila			272
5th, Ewing to John			373
3rd & Center to Sanborn & Center	12,377		
3rd, Zumbro to Carimona			271
Sanborn, Laird to Chestnut			282
Subtotal	23,960	629	1,198
"Lake" line			
Sanborn & Center to Dacota & Lake	6,277		
Howard, Huff to Harriet			286
Subtotal	6,277		286
Track common to both lines			
Center, 3rd to Sanborn	1,931	1,618	
Carhouse track			
Johnson, 3rd to Carhouse	560		
In the Carhouse			528
Totals	32,728	2,247	2,012
Total in Miles 7.005	6.198	.426	.381

According to U.S. Census figures the total track mileage decreased from 7.52 miles in 1917 to 6.50 miles in 1922. After a streetcar-train collision May 18, 1918, on the Dacota St. crossing of the "Lake" line, and because of the poor condition of the track in the crossing, the company decided to remove the crossing and abandon the track from there to the South end of the line at Lake St. effective June 1, 1918. A few years later a car spread the rails on the Dacota/Howard Sts. curve and derailed; the curve and remaining track on Dacota St. was then abandoned.

Transit directories depict the slow decline of the system.

1929 First track 5.920 miles, sidings .295 miles, total track 6.215 miles.
1933 Total track 5.6 miles.
1934 Total track 4.495 miles.
1935 First track 3.674 miles, second track .119 miles, sidings .226 miles, carhouse track .120 miles, total track 4.139 miles.

An experimental bus line was begun July 2, 1933, replacing streetcars on the "Lake" line. October 20, 1933, "Lake" line

track was officially abandoned. On this same date track was also abandoned on Center St. from 3rd to Sanborn, on Sanborn St. from Center to Laird, and on W. 5th St. from Lee to Hilbert Sts., all on the "Main" line.

Friday, July 21, 1938, was the last day of streetcar operation on the "Main" line. The very last run pulled in to the carhouse from the East end of the line in the early morning hours of July 22nd.

Power Generation and Distribution

Generating equipment for the electrification of the horsecar lines was installed in the Fiber Works plant at 3rd and Olmstead Sts.

Northwest General Electric Co. purchased a small building from the Winona Electric Co. in 1892 located on the Southeast corner of Front and Johnson Sts. This was made part of a larger building under construction at that location for use as a combined powerhouse and carhouse.

Street railway power generating equipment installed in this new building consisted of one Ide 200 h.p. engine, one Ball 80 h.p. single-cylinder engine, and two 86 h.p. generators.

As of 1-1-1916 generating equipment was two units supplying 575 volts D.C. with a total capacity of 400 K.W.

Carhouses and Shops

Horsecar barn facilities were converted for electric operation in 1891 and were actively used until 1893 when a three track 42´ x 105´ brick carhouse and repair shop was built adjacent to the powerhouse at 58 Johnson St. Some cars began operating from this new building in July, 1893. By September, 1893, all operations were being handled from the new carhouse.

The ex-horsecar facilities were sold to the Green Bay & Western R.R., although the Winona City Ry. continued to store the old horsecars inthe building. As of December, 1897, these old cars were still in storage there.

Due to expansion of the system, a 42´ X 87´ addition to the carhouse was built in 1906. The repair shop was relocated from the carhouse to this new addition.

Operations

Car 12 was the first electric car to operate, January 21, 1892, opening the "Main" line. Three cars were used on the "Main" line, one car on the "Depot" line, plus one spare car.

Relocation of sidings on the "Main" line in 1893 allowed for operation of four cars on a nine minute headway rather than the previous three cars on a 12 to 14 minute headway.

One car opened the "Lake" line, November 17, 1900, providing 20 minute service connecting with "Main" line cars, providing 10 minute service, at 3rd and Center Sts. This was changed December 21, 1900, when the "East End" line was started as a stub line operated from 3rd and Center to 3rd and Carimona; the West end of the "Main" line was through-routed with the "Lake" line.

The "Lake" line serviced Woodlawn Cemetary and Bluffside Park. The park had a dance pavilion and outdoor theater. During the summer of 1901 the company provided "motion picture entertainment" (Passion Play scenes) at the park to stimulate patronage. In June, 1902, the city placed planked walkways from the end of the car line to the park. During the summer of 1902 the company provided free concerts at the park. The landing at the South end of the lake accommodated four cars. On concert nights, when the concert was over, the four cars would load, then leave for town. The three other available cars were waiting at the nearest siding and proceeded to the landing after the four cars passed. Then regular service across the lake was resumed.

Service across Lake Winona was not provided during winter months. Winter operation ended originally at Dacota and Howard Sts. In November,1902, this was extended to Dacota and Mark Sts., the C. M. & St.P. R.R. crossing, but modified in December to provide rush hour service to Dacota and Lake Sts. In the early years occasional service across the lake was given in the Fall and Spring depending upon the weather. The prevailing service during March, April and November seemed to be Sundays only from 2 p.m. to 6 p.m.

On November 30, 1902, the "Main" line resumed its former through-routing using three cars, with the "Lake" line operated as a short line from 3rd and Center to Dacota and Mark Sts. using one car. In January, 1903, 10 minute service was instituted on the "Lake" line during the hours of 6:00 to 8:30 a.m., 12:00 to 2:00 p.m., and 5:30 to 8:00 p.m., to Dacota and Mill Sts. When regular service across the lake was resumed May 2, 1903, the "Main-Lake" through routing again went into effect using four cars; the "East End" line operated from 3rd and Center using one car.

The 1903 extension on W. 5th St. was a summer-only operation for several years. While under construction service was provided to Vila St. On August 14, 1903, the full length to Lee St. was opened.

In December, 1905, it was decided to modify the routings

established in May, 1903. During the rush hours only, 6:00 to 7:00 a.m., 5:00 to 6:30 p.m., the "Main" line would operate on W. 5th and E. 3rd Sts., with the "Lake" line operated as a short line from 3rd and Center Sts. using two cars. With construction of the East End loop trackage in 1906 the routings were again changed. The "Lake" line reverted to a short line operated from 3rd and Center Sts. "Main" line cars operated on W. 5th and E. 3rd Sts., clockwise around the 3rd, High Forest, Sanborn, Center loop. One "East End" car operated counter-clockwise around the loop.

When the second track on Center St. was extended during 1907 the objective was to reduce headway from 15 to 10 minutes on all the lines involved. The "Main" and "Lake" lines were again through-routed, the "East End" loop line operating with two cars, one in each direction, meeting "Main-Lake" line cars at Center and Sanborn. Completion of double track on Center St. in April, 1908, caused the "Main" and "East End" lines to be combined, all cars operating clockwise around the loop. "Lake" line again operated as a short line from 3rd and Center Sts.

By 1910 the company was having problems with the city council as to the condition of the cars and quality and frequency of service. Apparently the service had been reduced by reverting to the 1906 routings. In November, 1910, it was proposed to operate the lines:

"Lake" line: 3rd and Center to Dacota and Lake Sts. Two cars provide base service, meeting at the siding on Howard St.

"Main" line: W. 5th and Lee, via W. 5th, Johnson, 3rd, High Forest, Sanborn, Center, to 3rd and Center. Reverse direction, and return via the same route. Five cars to provide base service, meeting at the various sidings.

One "Lake" line car and two "Main" line cars would connect at 3rd and Center every 12 minutes. Base service on both lines operated on a 12 minute headway. Extra cars were operated in rush hours on the double-header method, an extra car immediately following a regular car. This change was promptly instituted and this system remained in effect for many years.

Smaller and older wooden cars, and later Birney cars, were used on the "Lake" line. The larger and newer steel cars were generally used on the "Main" line, and only occasionally on the "Lake" line.

When the "Lake" line and a substantial portion of the "Main" line were abandoned in October, 1933, 12 minute headway was continued by streetcars on the remainder of the "Main" line.

Equipment

Five single truck closed passenger motor cars, 10-14, were purchased from Northern Car Co., Robbinsdale. Measurements

were: 16´ body, 24´ 10" long overall, and 7´ 2" wide.

One single truck open snow sweeper was received 2-2-1892. In 12-1895 it was equipped with wing plows and flangers.

Two single truck open passenger motor cars had been ordered from Northern Car Co. but when nearly completed were destroyed in the May, 1892, fire that put the car company out of business. They were replaced by two 10-bench open motor cars built in St.Louis; 15-16 were received in 10-1892. They were motorized only during the summer months; in the winter the motors were used on the snow sweeper.

The newspaper reported that trailers were being operated in 6-1893. These were probably some of the former horsecars. The old horsecars were stored in the former horsecar barn, and were still there in 12-1897 when one was removed for use as a waiting room at the West end of the "Main" line.

Improvements to service implemented in 1893 required one additional car for the "Main" line. One of the 10-14 series cars was transferred from the "Depot" line, being replaced by a car (number 7) transferred from the St. Cloud system. Newspaper accounts report that a single truck closed passenger motor car, painted yellow, was purchased for use on the "Depot" line and received 9-26-1893. According to the paper of 10-14-1893 the company had seven closed cars and two open cars. Apparently the number 17 was reserved for possible purchase of the St. Cloud car because number 18 was assigned to the newly purchased car. St. Cloud number 7 was shipped back to them 12-28-1895.

Vestibules were first installed 12-1893. These comprised cherry wood fronts with plate glass windows; sides were removable canvas curtains. During 1896 the canvas was replaced with wood sides, doors on the "gate" side, and solid, with windows, on the "pole" side.

One single truck closed passenger motor car, 17, was purchased second-hand from somewhere in Illinois. The car arrived in 8-1900 but did not enter service until December.

The 1902 U.S. Census reported the company as owning seven closed passenger cars (10-14, 17-18), two open passenger cars (15-16), one work car and one snow sweeper. Of the 11 total cars, nine had electric motor equipment. Eight had fenders, six had stoves and ten had electric lights. The work car may have been the wire car, a four-wheel push car with a line tower built on the deck. In 8-1902 it was reported that six closed cars were available, five for regular service and one for a spare.

In the late Fall, 1902, one single truck closed passenger car, number 19?, was acquired from Buffalo, New York. Considered of

too light construction to be equipped with motors, it was to be overhauled during the winter for service as a trailer in 1903.

A snow sweeper was purchased from McGuire-Cummings Mfg. Co. in 1902.

The company first undertook overhauling cars in its own shops during 8-1902. Simultaneously the paint scheme was changed from dark red to yellow. Number 10 was the first car completed, in August. 13 was next completed, in September. All but three cars were finished by 2-1903. One of these three was completed by 7-1903. Only 14 never received the overhauling and by 11-1904 was badly in need of repainting.

During 7-1903 the first new K-2 controllers were installed on number 12. All other cars were to be similarly equipped as soon as possible. McGuire Columbian single trucks were installed on 10 and 12 during 11-1904.

In 12-1904 another car overhauling program was announced which included the installation of permanent vestibules (the previous ones were removable) and a new paint scheme. Canary yellow with orange belt panels was selected. It was also planned to overhaul car 14; a rehabilitated body would be placed on the old truck. However this was not immediately done; instead the motors were removed in 6-1905 and the car used as a trailer that summer. Car 17 was the first actually completed under the new program. Finished 1-1905 it also received a McGuire Columbian truck. The overhaul program was completed on: 18, 2-1905; 10, 2/3-1905; and 11-12, 4-1905.

Then the company announced that one "practically new" car, number 20, was to be added to the roster. This was a single truck closed passenger motor car, originally built by Pullman's Palace Car Co. for Milwaukee, Wisconsin. The car was to be repainted to the new Winona color scheme in Milwaukee; it had permanent vestibules and one McGuire Columbian truck. The car arrived in Winona in 1-1905. The newspaper reported at that time that cars 18 and 20, as well as the two open cars, had 18 ft. bodies, while the other cars all had 16 ft. bodies.

From 9-1905 through 2-1906 car 14 was completely overhauled with new style vestibules, new windows, rehabilitated body, new truck and motors. Upon completion it was re-numbered 19, implying that 1st 19 had been retired.

Two new closed passenger motor cars, 21-22, were received from McGuire-Cummings Mfg. Co. in 12-1906 and placed in service 2/3-1907. This gave the company ten closed cars (10-13, 17-22) and two open cars (15-16).

Car 17 was badly damaged in a derailment 4-1907, and was again

overhauled and partially rebuilt, including new vestibules. This work was completed 11-1907.

In 8-1907 a flat trailer was built by placing 2" planks on a frame mounted on a single truck. This car was used for hauling supplies, cinders, waste, etc.

Two new closed passenger motor cars, identical to 21-22, were ordered from McGuire-Cummings Mfg. Co. in 1907. 23-24 were received 12-1907 and placed in service 1-1908.

WIth the pending arrival of new cars 23-24, newspaper accounts of the company's equipment as of 10-1907 can be summarized. Seven cars to be used in regular service: four new cars 21-24; three cars almost as good as new 17, 19 and 20. Four cars in reserve, the oldest cars, 11-13 and 18. Two summer cars, 15-16. Apparently car 10 had been retired during 1907.

The 1907 U.S. Census listed nine closed passenger cars, two open cars, and one work car (snow sweeper). Of the 12 total cars, 11 had electric motor equipment (two motors per car). The nine closed cars would be 11-13 and 17-22, assuming 23-24 were not counted as they had not yet entered service.

One open car was used to haul rails for track construction on Center St. during 4-1908. The newspaper then reported that car 16 (sic) entered the shops during 7-1908 to be rebuilt with permanent vestibules. This car was completed in August. Perhaps this was car 13, renumbered 16 and replacing the open car.

Car 23 is mentioned as pulling a trailer in an article in the 10-25-1908 issue of the newspaper. The article stated the weather was quite bad that day but no hint is given as to whether the trailer was open or closed. It is uncertain just what car this trailer could be.

Number 20 was involved in a collision in late 1908 and was rebuilt during the winter of 1908-09, "re-styled" in that the permanent vestibules were made to conform to those on the other cars. Shortly after its release from the shops in 2-1909 the car was placed in shuttle service on W. 5th St. West of Jackson St. due to a railroad crossing replacement. The car was stored outside on the street overnight. Vandals set it on fire one night, completely destroying the car.

Another car then in the shops, probably 12, being repaired and rebuilt with the latest vestibules, was re-numbered 20.

As of 4-1909 eight closed passenger cars were reported owned. Presumably 18 had been retired. 11 was not in the best condition; we don't know if it was included. If it was then

2nd 19 would have been retired. Thus the eight cars would be: 11 or 2nd 19, 2nd 16, 17, 2nd 20, and 21-24.

Four open trailers were purchased second-hand through the Dorner Railway Equipment Co., Chicago, for ball park service over the newly constructed branch line. These cars were former Chicago cable trailers. Listings in the Electric Railway Journal are not clear as to the cars involved.

2096,2102,2108 and 2112 (2096-2116 series built by John Stephenson Co.) were shipped to an un-named destination in 3-1909.

2686,2692,2698,2700,2704 (2660-2719 series built by American Car Co.) were shipped, supposedly to Winona, in 4-1909.

2668,2670,2681,2709 (2660-2719 series built by American Car Co.) were shipped to Winona in 5-1909.

Since the purchase agreement was reported in the 4-26-1909 Winona newspaper, the four cars shipped in 5-1909 are most likely the four received in Winona.

On 3-15-1910 the P.A.Y.E. fare collection system was put into effect. Front doors were used for both entrance and exit, the rear doors being unused.

Number 11, being in poor condition, was retired in 1910. Short of cars, the company purchased two single truck closed passenger motor cars from Chicago in late 1910. Numbers 25-26 were repainted in Winona colors before being shipped from Chicago. 25 was received in 12-1910, entered service in 1-1911, and was quickly discovered to have flat wheels. 26 was received in 1-1911, entered service in 2-1911, and burned out both motors one day after going into operation.

After purchase of the Chicago cars, nine closed passenger cars were owned, eight needed for service with one for a spare. These nine cars would be 16-17, 20-26. Thus 2nd 19, if not previously retired, had definitely been disposed of by this time.

Car 17 was destroyed in a train collision on the Dacota St. crossing on the "Lake" line in 5-1911.

The company was having continual problems with the city council regarding condition of the cars during 1911. The former Chicago cars were not in good mechanical and electrical condition when received. The poor financial condition of the company did not help matters. According to newspaper articles the company informed the city council in 1911 that it had ordered four new cars. However the Electric Railway Journal's listing of 1911 car orders, published in early 1912, shows that only two cars were ordered, from the John Stephenson Co. The newspaper reported that one car was received 6-12-1911, and another car, number 29, on 7-1-1911. Later articles mention car 29 so that number is correct. If the existing numbering system was followed

four cars would have been numbered 27-30. Perhaps four cars were originally ordered but the deteriorating financial condition allowed them to take delivery of only two cars after the order was completed.

The ex-Chicago open trailers were evidently re-numbered, probably 31-34, as a newspaper article dated 7-4-1913 mentions a car number 33 in operation that day.

Cars 21 and 23 were involved in a head-on collision 10-9-1911. The receiver decided to overhaul and repaint all the cars to improve relations with the city council. As the cars were completed they were also re-numbered.

New No.	Old No.	Date in Service	Comments
1	21	1-03-1912	repaired after collision
2	23	2-06-1912	repaired after collision
3	?	2-23-1912	
4	?	3-08-1912	
5	16	4-??-1912	3 and 16 were in a collision 3-1-1912; both were repaired.
6-7-8	?	May/June 1912	

As nine cars were reported owned at this time (16, 21-26, ? and 29) apparently 2nd 20 had been retired (1911?) and one car had not yet been overhauled and re-numbered. The latter may have been 26 which was supposedly disposed of after the summer of 1914, still with this same number.

Four modern cars of steel construction were ordered from St. Louis Car Co., order 1012, 10-1913, and were received 3-30-1914. Numbered 9-12, they were 34′ 4 1/2" long overall with 6′ 3" platforms, 8′ 1" wide, weighed 12 tons, and seated 32 persons. The single St. Louis 46 truck of 8′ 0" wheelbase was equipped with two 25 h.p. motors. The cars were painted yellow and entered regular service 5-3-1914. All were equipped with air brakes in 1916.

One man operation began 5-2-1914. The older cars had been equipped with folding doors operated by the motorman, using automatic door openers installed on the vestibuled platforms. All entrance and exit was through the front vestibule. During 7-1914 push buttons replaced overhead pull cords on the older cars which were used by passengers to signal the motorman when they wished to alight. In 12-1914 the first use of storm windows on the cars took place, and scrapers were replaced by sanding devices.

Four additional passenger motor cars of steel construction were ordered from St. Louis Car Co., order 1092, 2-1916. These cars differed slightly from the previous order being about 36′ 6" long and 8′ 8" wide. Other data was the same except that these

cars were equipped with air brakes when built. Numbered 13-16, all entered service 9-1916.

On 5-18-1918 the Milwaukee Road "Fast Mail" train struck broadside and completely demolished car 3 on the Dacota St. crossing of the "Lake" line. Two persons were killed and seven injured.

In 6-1918 the company announced a new color scheme was to be adopted, similar to that used in LaCrosse. Side and end panels would be dark green, window sash and letterboard yellow, and roof flame red. This scheme was used only on the modern cars 9-16 as old cars 1-8 retained the yellow scheme until they were retired.

Information is lacking on the dispositions of 1-8.
The company kept a logbook of accidents and from this it was possible to obtain the last date each car was in an accident. This gives a rough idea when a each car was nearing the end of its life.

1	4-1919	5	10-1914
2	6-1915	6	4-1913
3	5-1918	7	11-1920
4	3-1918	8	11-1920

During 1920 LaCrosse City Ry. single truck closed passenger motor cars 35-37 were transferred to Winona for use on the "Lake" line. Details on the cars are given in the chapter on LaCrosse in this Supplement. Car 36 was retired about 1925, the body being sold and converted into a garage. Car 35 was scrapped about 1926. Car 37 was wrecked by a falling tree during a sleet storm in 1926 on the "Lake" line.

During 1923 LaCrosse City Ry. cars 49-50 were transferred to Winona. These cars had been built by St. Louis Car Co. in 1912 and were nearly identical to Winona cars 9-12. The only differences were that the entrance-exit doors were sliding rather than folding, and a hooded destination sign was mounted on the front dash. In 1925 both cars were remodeled and re-numbered 7-8. The sliding doors were replaced with folding doors and a window-mounted destination sign replaced the dash sign.

A new color scheme was devised in 1926. Body was french grey, window frames delphinium blue, and roof black. Later a white "flare" was painted on the dashes.

In 1928 two single truck double end Birney cars were purchased from the Menominee & Marinette Light & Traction Co., Wisconsin. Originally their 1-2, they were built by St. Louis Car Co. in 1924, measured 28´ 1/2" long, 7´ 8" wide, weighed 16,600 lbs., and were equipped with one St. Louis truck with Westinghouse

motors. They were repainted in Winona colors and re-numbered 5-6. Both were used primarily on the "Lake" line.

About 1930 the entire fleet of cars, with the sole exception of number 12, was repainted to a new color scheme. Orange body, cream window sash, red trim. red-orange or black roof, and white "flare" on the dashes. About 1934 the white "flare" was eliminated.

Car 12 was in poor condition in 1930 perhaps the result of an accident in 4-1930. The body was eventually sold and became a 4-H club house at Farmers Community Park located between Stockton and Lewiston, Minnesota.

Transit directories summarize the equipment operated during the last years of operation.

1923-24:	15 passenger motor cars (all one-man operated) and one snow sweeper.
1925-32:	11 passenger motor cars and one snow sweeper.
1933-34:	6 passenger motor cars and one snow sweeper.
1935-38:	4 passenger motor cars and one snow sweeper.

The accident logbook shows that the last accident dates for cars 7-8 were 6-1929 and 6-1930 respectively. Birney cars 5-6 were last used in 1933 and scrapped that same year. Cars 9-11 and 13-16 were retained until 1938, the last year of operation.

The last run was made by car 10 with Joseph McCormick as motorman 7-22-1938. The dispostion of 9-11 and 13-16 is not recorded. The snow sweeper was transferred to LaCrosse.

WAHPETON-BRECKENRIDGE ST. RY.

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The two passenger cars were not purchased new but rather second-hand, through A. S. Partridge, St. Louis, a used streetcar dealer. Both were former Chicago City Ry. cars.

W-B No.	CCR original number	CCR 1908 re-numbering	Pullman's Palace Car Co. Order No.	Date
1	1907	2307	836	1895
2	2161	2323	873	1896

STILLWATER ST. RY.

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Newspapers reported in April, 1897, that the street railway was to be abandoned.

GRAND FORKS ST. RY.

Pages 439-441

The Grand Forks St. Ry. incorporated in 1892 was organized by E. G. DeCelle of Minneapolis. A franchise was granted by the city during 1892; at this time the incorporators were described as several local persons and several St. Paul (Minnesota) businessmen. W. C. Merryman of Phillips & Merryman Engineering Co., St. Paul, began surveying the projected lines August 2, 1892. However no track was ever laid.

Incorporation for the next Grand Forks St. Ry. was December 9, 1908. On June 18, 1909, the company purchased Webster Merrifield's ownership interest. By July 31, 1909, the final ownership interest purchases were completed.

The Lincoln Park line opened July 16, 1909. Construction of the East Grand Forks line began in 1910 from the Great Northern Ry. station on DeMers Ave. and was completed in early 1911. The Riverside Park line was completed in late 1911 or early 1912. Reconstruction and relocation of the University line was accomplished in early 1913.

The snow sweeper purchased in 1909 was numbered A2. Presumably the snow plow purchased in 1906 was numbered A1.

Two 18 ft. closed single truck passenger motor cars were purchased from the Dorner Railway Equipment Co., Chicago, in June, 1909. Each car was equipped with a Brill 21E truck fitted with two G.E. 800 motors. These cars were probably numbered 112 and 114.

A directory listing, undated, reported that the company owned seven single truck motor cars, two double truck motor cars, two trailers and two snow plows. (The seven single truck cars would be 102 to 114, even numbers only.)

Abandonment of the East Grand Forks line took place June 30, 1919.

Birney cars were placed in service on the Riverside Park line January 27, 1921, followed by the University and Lincoln Park lines January 30th.

Abandonment of the Riverside Park line occurred in June, 1931, with the Lincoln Park line going later in 1931. Repaving of University Ave. was the main cause of that line's abandonment. One final sentimental run on that line was made July 15, 1934, for company directors, professors, city officials, and businessmen. One car was used carrying about 24 passengers.

AMERICAN TRACTION CO.

Pages 441-442

During 1909 a group of Iowa and South Dakota bankers formed the American Suburbs Company to promotoe the sale of real estate. A bank was established in Ranier to facilitate the promotion. A subsidiary, American Tramways Company, was incorporated in South Dakota during 1909 to construct a street railway connecting the Duluth, Winnipeg & Pacific Ry. depot in Ranier with the Northern Pacific Ry. depot in International Falls. Necessary franchises were obtained during 1910 and in November of that year it was announced that the line would probably use Edison storage battery cars.

Construction began in Ranier with the intention of building directly into International Falls on 4th Street. However when track laying began within the city limits of International Falls during June, 1911, and near the Minnesota & Ontario Paper Co. sawmill, the company was taken into court by the E. W. Backus interests, International Lumber Co., on the grounds that construction of the track would interfere with the sawmill operations and pose a hazard crossing the Minnesota, Dakota & Western Ry. yards further West on 4th St.

The first car arrived in July, 1911. A newspaper photograph shows it to be a standard American Car Co. semi-convertible identical to the Grand Forks single truck cars. There was no trolley pole evident so perhaps this was an early attempt at gasoline-mechanical operation.

Meanwhile the court case was complicated and eventually ended in the Minnesota Supreme Court. The final verdict was that while the objections to the line were not completely valid, there were a number of careless errors in the original franchises granted by the respective towns to the car line company. One of these errors was that the company was given the right to operate both passenger and freight service in contradiction to a Minnesota law prohibiting a street railway from performing freight operations. After this irregularity and others were revealed by the court in August, 1912, a new company appeared on the scene seeking the franchises.

This company, American Traction Co., was a also a real estate promotion adjunct. It was organized by L. H. Nord, an International Falls resident, in cooperation with L. L. Enger, Minneapolis, both jointly involved in the International Falls Realty Co. A. L. Sortor, Minneapolis, became president of the company in 1913. During January, 1913, this company, friendly with the Backus interests, received the proper franchises and in July of that year purchased all the property and rights of the American Suburbs Co. and American Tramways Co. With regard to

the car line this involved 5.50 miles of track and one passenger car.

The track on 4th St. in International Falls was removed and relocated directly south from Ranier to South International Falls (as indicated on the revised map included in this Supplement). The advantage of this new route was that it served more people in terms of where they lived. The disadvantage was that it was not competitive with the direct International Falls-Ranier service provided by boats and "buses".

(In February, 1914, A. L. Sortor, on behalf of the American Traction Co., was seeking a franchise to build and operate a streetcar line in Faribault, Minnesota.)

Construction of the relocated line proceeded slowly, so slowly that the first operation did not take place until September 20, 1916, over the 6.75 miles of track. A gasoline-mechanical car had been purchased in 1916 from the Charles City Western Ry. of Charles City, Iowa. This car was considered a total "flop" on the CCW Ry. and was equally unsuccessful on the ATC. A carhouse was built at the Ranier wye.

One real estate investor moved to International Falls as result of his investment. He reported lots were offered at $500 each, some of which were under water as much of the line ran through swampland. He considered the gasoline-mechanical car as " a pile of old junk".

One new storage battery car was acquired from the Railway Storage Battery Co. of Silver Lake, New Jersey. Edison alkaline nickel-iron batteries were used. This four-wheel car, with an eight-window body seating 30 persons, arrived July 3, 1917. The investor previously mentioned reported that the batteries had to be recharged after each trip.

A timetable dated July, 1917, was printed in the local newspaper.

Leave Ranier	Leave International Falls
1:50 a.m.	2:15 a.m.
6:30 a.m.	7:15 a.m.
11:30 a.m.	1:10 p.m.
3:00 p.m.	4:15 p.m.
5:10 p.m.	6:15 p.m.
7:00 p.m.	10:30 p.m.

The company announced they expected to add a seventh round trip within a short time. Additional cars would be put on and more numerous trips made as the patronage increased.

George R. Wiar of Ranier was the local manager and conductor, with Ray Holler as motorman. Later in 1917, R. B. Kook, an International Falls merchant, was appointed general manager.

The local newspaper reported in December, 1917, that the company was having trouble recharging the batteries. Apparently the Ranier power plant was inadequate to handle the winter power load of the community plus recharging the car's batteries.

A timetable printed in the February 7, 1918, newspaer was not much different from the earlier timetable.

Leave Ranier	Leave International Falls
1:45 a.m. (meets the Duluth train)	2:15 a.m.
8:15 a.m.	9:30 a.m.
11:30 a.m.	1:00 p.m.
2:15 p.m.	3:30 p.m.
5:10 p.m. (meets the Duluth train)	6:15 p.m.
7:30 p.m.	10:00 p.m.

An elderly resident recalled that when he returned to International Falls from World War I military service in the Fall of 1918 the line had already stopped running. One carbody was sold and used for several years for an unstated purpose near the Ranier wye. The carhouse was moved to the river front for use as a boat house. It was still there in the mid 1980's, although considerably altered over the years.

SECTION IV INTERURBAN ELECTRIC RAILWAYS

MESABA RAILWAY CO.

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Freight and express service offered during 1918 followed this schedule.

Leave Virginia	10:20 a.m.	Leave Hibbing	2:01 p.m.
Arrive Gilbert	10:56 a.m.	Arrive Gilbert	4:56 p.m.
Leave Gilbert	11:01 a.m.	Leave Gilbert	5:01 p.m.
Arrive Hibbing	1:50 p.m.	Arrive Virginia	5:55 p.m.

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Map correction: the Hibbing waiting station wye track was located alongside the building rather than in the street.

Page 463

The original color scheme for the passenger cars was tan roof, dark green body, and silver lettering. This was later changed to black roof, dark red body, and silver (white?) lettering.

Pages 465-466

Trailers 6 and 7 were originally owned by the New York & Brook-

lyn Bridge R.R., built by Pullman's Palace Car Co. in 1886.

MINNEAPOLIS ANOKA & CUYUNA RANGE RY.

Pages 469-489

The re-possessed McKeen gasoline-mechanical passenger motor cars were eventually, 1923, purchased by the Union Pacific R.R. "Minneapolis" became their M-27 and was retired in September, 1934. "Anoka" became their M-28 and was not retired until July, 1942.

Our guess as to the original color scheme of the electric passenger motor cars was maroon body with silver lettering. After rebuilding for one-man operation, box car red replaced the maroon.

Mileage figures for the 1916 passenger timetable has been found.

Minneapolis	0.00	Coleman	11.17
Oak Grove	5.65	Foley	12.55
Cold Springs	5.98	Bryan	13.20
Riedel	6.75	Hewson	13.79
Nelson	7.54	Coon Rapids	13.94
Fridley	8.58	Hanson	14.64
New Dayton	9.33	Oakland	15.89
Meyers	9.48	River View	17.72
Onaway Park	10.17	Anoka	19.21

TCRT's legal department maintained a correspondence index from 1917 to 1927. The most striking feature of the entries pertaining to the M A & C R was the bill collection problems. It seems M A & C R was consistently slow pay. Several entries pertain to the use of TCRT equipment.

4-1917	Snow plow.
7-1919	Work car 7.
4-1920	Wire car.
1-1922	Two passenger cars with two pilots. (In this case pilots meant operating personnel.)
6-1923	Wrecker.
9-1924	One passenger car.

M A & C R passenger car number 7 was mentioned as being in service May 16, 1924. It probably saw only an additional year or two of service as the rebuilt one-man cars were completed.

Northern Ordnance Inc. took a photograph of freight motor number 5 in January, 1944, behind their plant building in Fridley. Generally it appeared about the same as in the photograph on page 476. Doors and window frames seem to have suffered the most since 1937 but the lettering was still readable. Presumably the car was dismantled shortly after the photograph was taken.

Pages 471-477, 483

A book of monthly accounting entries for the period January, 1923, through June, 1925, yielded interesting information. The trackage lease over the Minneapolis St. Ry. was paid for at the rate of 3 cents per passenger. Electric Short Line Terminal Co. station rental was $250 per month. Dump cars 1, 3-6 were sold in May and June, 1923. Steam locomotive 1 was sold November, 1924. Flat car 102 (sic) had been sold July 21, 1919. Passenger cars 4 and 6 were retired November, 1924.

Depreciation expense entries in this book were first itemized by equipment number in December, 1924. In January, 1925, some of the descriptions were changed but then remained consistent until the end of the records in June, 1925.

Car Numbers	Description	
1,2,7,8	Passenger Cars	
3	Locomotive	Work Car (1-1925)
5	Locomotive	Freight Locomotive (1-1925)
100	Engine	Freight Locomotive (1-1925)
25	Snow Plow	
2	Dump Car	
101	Flat Car	
103 (sic)	Flat Car	
	Gas Car (*)	
1-2	Push Cars (*)	
	Velocipede (*)	

(*) track maintenance section cars.

These accounting records also produced the interesting fact that the M A & C R owned and operated one auto bus. An accounting adjustment was made for one bus which had been sold in June, 1921. Premiums for bus insurance were paid through July, 1924. A transit directory with a reporting date of 1-1924 listed M A & C R as owning one auto bus.

The Chesley Report

The Saco & Biddeford Savings Institution of Saco, Maine, held some of the mortgage bonds of the M A & C R Ry. and was becoming increasingly concerned about the quality of the investment. They hired Franklin P. Chesley, also of Saco, to inspect the property and submit a report and recommendations. His inspection was made in November, 1925. Excerpts from his report provide a fascinating description of the property and operations.

C. P. Bratnober, Minneapolis, was a lumber dealer who had furnished the timbers used in construction of all the bridges. Four bridges were later filled in.

The proposed extension to the Cuyuna Range iron ore deposits was intended to make M A & C R an ore carrier. The idea was dropped

after the Soo Line and Northern Pacific extended their tracks into the territory.

Officers of the company at this time were C. P. Bratnober, President; H. L. Bratnober, Vice President; and C. A. Bratnober, Secretary-Treasurer; father and two sons respectively. Arthur E. Appleyard was General Manager and a Director, and Arnold A. Kranhold Superintendent and Purchasing Agent. There were 27 common stockholders. Of the 1,000 shares outstanding the Bratnober family owned 637 shares and A. E. Appleyard 205 shares. 2,000 shares of preferred stock were outstanding of which the Bratnober family owned 925 shares and A. E. Appleyard 510 shares. (One wonders if this was the same A. E. Appleyard who was the third major builder of interurban railways in Ohio in the early 1900's whose empire collapsed in February, 1906.) Mr. Chesley speculated that Mr. Appleyard's stock in M A & C R was received in exchange for promotional efforts. Mr. Chesley's opinion was that Mr. Kranhold completely managed the railway, the officers and directors having other active interests had "apparently very little thought for this property".

Property. Rails were of 56 lb. weight milled in 1901 in poor condition with extreme need for welding at the joints. Ties were defective or second class, 2600 per mile, with many replacements needed as many were cut (worn) to a depth of 1 1/2 inches. Only cinders or sand had been used for ballast. The space between the rails was completely filled with weeds and grass "indicating little maintenance of this nature for some time, or else showing a very rapid development of weeds and grass". Overhead poles used were 30 foot cedar, set 150 feet apart on tangent track and 100 feet apart on curved track, carrying the usual brackets, insulators, and #4 copper wire. All appeared to be in fair condition with only a few pole replacements needed. "It may be that the condition of the ties and rail is due to---so much freight being hauled---from adjacent railway lines and the heavy loading of cars is too much weight for the rails to carry, but this freight business is essential, as it seems to be the only paying revenue at this time". Power was purchased from Northern States Power Co. at 1.125 cents per kilowatt hour.

Rolling Stock: "Three passenger cars, one express car, one work car, two freight locomotives, one plough, one dump car, two flat cars, one electric welder, one steam engine for freight, one gasoline hand car, constitute the rolling stock. Of this equipment two of the passenger cars are in good condition, the two freight locomotives are in fair condition. The rest of the equipment is in a very poor condition, and the freight car useless so that the present management has for some time been hiring freight cars from the railroad company at the rate of one dollar per day."

Operations (Personnel):
Anoka Office: Superintendent ($150 per month salary plus 10% commission on freight and express, except that of the Pillsbury Co.); Auditor ($150 per month salary); Agent ($100 per month salary plus 5% commission on freight and express over $600 and 10% on the same over $700); Stenographer ($65 per month salary); Auto Truck, $35 per month for collection and delivery of freight and express.
Anoka Carhouse: Master Mechanic ($165 per month salary); Mechanic (42 1/2 cents per hour); Car Cleaner (38 1/2 cents per hour).
Minneapolis Office: Agent ($90 per month salary); Secretary-Treasurer (no salary).
Car Operators: Freight Car Conductor, who is also Road and Yard Master ($150 per month salary); Freight Car Motorman (41 cents per hour); Four Passenger Conductors (sic) (two at 45 cents per hour and two at 42 1/2 cents per hour, nine hour day).

Selected Comments: "Upon inquiry we found that the road is appreciated, but its future uncertain due to bus competition. We also found that the company has paid current bills promptly and stands well in this regard. It seems to be the conclusion of the officers of the road that passenger traffic is at its lowest ebb and freight traffic at the peak."

Recommendations: Mr. Chesley was highly critical of the management of the road and made some rather harsh remarks about certain individuals. "We advise retaining present holdings until a protective committee is organized, an audit of the affairs of the company made, and the question of individual or corporate liability determined. ---it is possible that a re-organization might be effected which would return fifty cents on the dollar of original investment. In the absence of the latter we are satisfied of finding buyers for these bonds in Minneapolis at the rate of 25 cents on the dollar. This disposition would net much more than selling for junk by receiver on foreclosure proceedings."

Pages 479-482

November, 1929 Right-of-Way Map

5+63	750 L.F. is measured from this station to the end of the wye leg.
25+12	Soo Line spur track to Swanson's Brick & Tile Co.
62+30	Oak Grove Station
70+82	331 L.F. from switch to Great Northern Ry. spur track connection to the Minneapolis Water Filtration Plant. (The Water Treatment Plant had not yet been built.)
72+53.4	Crossing of foregoing G.N. Ry. spur track.
79+73	Cold Springs Station
120+13	Riedel Station
162+02	Nelson Station

212+26 Fridley Siding-south switch
215+77 Fridley Siding-end of track (351 L.F.) (The north switch had been removed.)
217+77 Fridley Station
251+84 New Dayton (The word Station had been erased.)
265+08 Meyers Station
284+59 Osborne Station
292+75 Onaway Siding-south switch
295+11 Switch for 345 L.F. spur track to Great Northern Ry. connection.
296+72 Onaway Siding-north switch
300+95 (Onaway Station had been erased.)
354+27 Coleman Station
(No siding shown at Coleman; no erasure visible.)
382+60 Sonora Station
427+02 Foley Station
Right-of-way widens at 435+00 and still wider at 452+94.6
455+64 Bryan Station
Coon Creek culvert 469+76. Right-of-way widening ends at 471+87
484+52 Hewson Station
506+48 Coon Rapids Station
509+45 Switch for Coon Rapids Dam spur track. M A & C R track extended from 0+00 to 35+90. An additional 684 L.F. of track on Northern States Power Co. property continued to the powerhouse at the dam.
537+76 Hanson Station
553+18 South end of Siding
555+38 Siding switch
604+02 Oakland Station
700+44 Riverview Station
734+16 Gravel Pit spur track (724 L.F.) switch.
736+82.3 End of curve and connection with abandoned Northern Pacific Ry. right-of-way. Northward, M A & C R track was located on this abandoned right-of-way. (The abandoned right-of-way also extended in the opposite direction, Southeasterly but West of the M A & C R.}

Refer to map corrections in this Supplement for right-of-way station numbers at the carhouse sidings. End of track at the Great Northern Ry. Pillsbury Mill spur track connection is 796+95.2, the same as shown on the map in the book.

Page 488

Photograph of No. 105

When 105 was rebuilt in 1944 the intention was to provide a second freight locomotive as well as a snow plow. The existing hardware for the detachable front plow allowed sufficient clearance for the attachment of brakeman's footboards. The supporting braces were welded to the front bumper. This is also

the reason why the Type M control, and probably the traction motors, from scrapped freight motor #5 were installed.

The snow plow attachment in the 1946 photograph was a later replacement. Its installation was permanent and required considerable supporting attachments to the underframe which necessitated removal of the footboards and supporting braces. The braces were torched off at the underside of the front bumper. The additional weight of the replacement plow required compensation at the rear end of the car by the installation of concrete ballast blocks on the rear deck.

When the car was sold to the Valley City Street & Interurban Ry. the snow plow and ballast blocks were removed, but the supporting attachments were not. Photographs of 105 in service at Valley City show all these alterations clearly.

ST. PAUL SOUTHERN ELECTRIC RY.

The original color scheme of the passenger cars was dark green body with silver lettering. This was later replaced with an orange and maroon color scheme identical to that used on C. M. & St. P. Ry. passenger equipment.

The TCRT legal dept. correspondence index previously referred to also has references to the use of TCRT equipment on the St.P.S.E. Ry.

12-1918: Passenger cars.
1-1919: Passenger car 1302.
8-1920: Passenger car 1334.
2-1923: Wrecker.
7-1924: Replace car on track.
2-1925: Snow plow.
12-1925: Snow plow.
12-1925: Repairs to St.P.S. snow plow (cost $1,721).
1-1927: Snow plow.
11-1927: Repairs to St.P.S. snow plow.

SECTION V

INTERURBAN GAS-ELECTRIC RAILWAYS

DAN PATCH ELECTRIC LINES

Page 506

George P. O'Rourke, the General Superintendent of DPEL, purchased Antler's Park from the Receiver August 13, 1917, for $16,000. He and his wife operated the park from that time onward. Mrs. O'Rourke died in 1935 and Mr. O'Rourke sold the pakr in 1939.

The M. N. & S. Ry. began passenger operations May 18, 1918, from 54th St. to Northfield. On December 1, 1918, operation resumed from Auto Club Jct. to Luce Line Jct. and over the Electric Short Line Terminal Co. to downtown Minneapolis. At this time the railbus began providing the service between 54th St. and Auto Club Jct.

Trackage rights over the Chicago Great Western Ry. from Northfield to Faribault were again obtained and passenger service initiated July 17, 1921.

Due to lack of patronage and labor troubles the passenger service between 54th St. and Auto Club Jct. was reduced to two daily round trips August 1, 1922, and discontinued completely September 9, 1922.

The M. N. & S. Ry. reported that during 1922 bus companies increased service between Minneapolis, Northfield and Faribault. As a result railway passenger traffic dropped off 40% per month in the Spring of 1923. As of November, 1923, patronage was 60% less than 1922 even though the trains took 20 minutes less time than the buses and bus fares were 15 to 25 cents higher per trip.

Trackage rights over the Chicago Great Western Ry. were increased January 18, 1925, and passenger service was extended from Northfield to Randolph and Faribault to Mankato. Total mileage from Randolph through Northfield to Mankato was 61.35 miles.

The first joint timetable issued by the M. N. & S. Ry. and Minnesota Western R.R. has not been located. It is known that as of November 1, 1927, the M. N. & S. was not operating the M. W. R.R. The second joint timetable was dated November 11, 1928.

Effective January 17, 1931, passenger service ceased between Northfield and Randolph and between Faribault and Mankato. Passenger service between Northfield and Faribault ceased July 17, 1931.

Pages 509-513

Strang System Gas-Electric Cars

"Ogerita" was built under J. G. Brill Co. order 14184 February, 1906, and was named for a niece of Mr. Strang, Miss Ogerita Strang, of Kansas City.

"Marguerite" and "Geraldine" were built under J. G. Brill Co. order 14877 during 1906. "Marguerite" was the first completed, named for Mr. Strang's wife, and entered service in August,

1906. "Geraldine" was named for another niece, Miss Geraldine Ryan, Kansas City, and entered service later in 1906.

The foregoing three cars constituted the M. & K.'s only motorized equipment according to the 1907 U.S. Census.

"Irene" was built under J. G. Brill Co. order 15652 in early 1908, lettered for the Strang Gas Electric Car Co. It was named for yet another niece, Miss Irene Kenefick, Kansas City.

"Rosamond" was built under J. G. Brill Co. order 15771 during 1908, lettered for the Chicago & Alton R. R. The car was 66 ft. long, weighed 52 tons and seated 48 persons.

"Ogerita" "Marguerite" and "Geraldine" were returned to the J. G. Brill Co. during 1908 and modified under order numbers 15948, 15950 and 15952 respectively. The nature of the modifications is not known, except that "Ogerita" had the center entrance removed and parlor car seating replaced by leather transverse seats, all to increase seating capacity. All three cars were returned to the M. & K. for continued operation.

The M. & K. was electrified in late 1908, the first electric cars operating January 14, 1909. "Geraldine" was rebuilt to electric passenger motor car 101 and "Marguerite" to electric freight motor car 107. 102-104 and 105-106 were electric passenger motor cars ordered from American Car Co. in 1908 and 1909 respectively.

Electric Railway Journal equipment sales advertisements in the February and March, 1909, issues included some from Twin City Equipment Co., Kansas City. The February ad offered for sale one Strang gas-electric car for $12,000. The March ad offered for sale two new Strang cars.

"Ogerita" was probably acquired in January or February, 1909. It was never sold to the Electric Short Line Ry. The car was probably retired from Antler's Park or sold with the park.

J. G. Brill Co. order numbers 17261 and 17301 date to mid 1910.

The pencil notes state that "Rosamond" was destroyed by fire in 1914. Presumably this would be the paint shop fire in November; see the photo caption on page 513.

Page 515

General Electric Co. Gas-Electric Passenger Cars

A G.E. demonstrator just arrived from Schenectady made the first official trip over the line from Minneapolis to Savage July 2, 1910.

The pencil notes on the equipment of the G.E. cars listed the builder's serial numbers for cars 3 and 8 as 3720 and 3706 respectively. The G.E. builder's plate from car 8 has been retrieved and the serial number on that plate is 3706. The pencil notes were correct; see the photo caption on page 513.

G.E. demonstrator 2 was involved in a head-on collision with a steam locomotive on the Rapid City, Black Hills & Western Ry. during 1911. G.E. rebuilt the car, around November, 1911, at which time it was re-numbered to stock car 7 and assigned serial number 3720. The car with G.E. serial number 3706 was built as stock car 6 in March or April, 1911, but was not sold to DPEL until March, 1912. It appears that the mix-up in G.E.'s serial number list happened about this time. The DPEL notes show the date received for car 3 as 12-17-1914.

Pages 517 and 519

Equipment Dispositions

John Ringling, owner of Ringling Brothers Circus, also owned and operated several short line railroads. Equipment for these railroads was bought and sold through his Western Locomotive & Car Co., Chicago.

Number 4 was sold in 1916 to Western Locomotive & Car Co. which leased it to the Oklahoma, New Mexico & Pacific Ry. (Ringling owned) as their number 5 in December, 1916. Number 10 was sold directly in 1916 to the O. N.M. & P. Ry. as their number 1. One of these two cars was sold 1927 to the Midland Valley Ry. becoming their M-6 which entered service February, 1928. (The M.V. Ry. leased the car for awhile to the Kansas, Oklahoma & Gulf Ry. as their number M-22.) During 1939 the body of M-6 and the machinery from M-8 (another G.E. gas-electric car) were combined to produce the second M-8. Machinery from M-6 and body of M-8 were scrapped 1939. Second M-8 was sold for scrap November, 1954.

Number 5 became Okmulgee Northern Ry. 110. It was resold in 1924 to the Jonesboro, Lake City & Eastern R.R. retaining the number 110. Resold 11-1-1925 it became 3rd 2117 of the St. Louis-San Francisco R.R. Scrapped 1935.

Number 8 was sold to the Spokane, Portland & Seattle Ry. 4-12-1917. They resold it 9-10-1924 to the Warren & Ouachita Valley Ry. becoming their number 1. The car was later converted into a trailer; retired 1949.

Number 9 was sold December, 1916. The Northwestern Pacific Ry. purchased the car in June, 1921, numbering it 900. It was resold December, 1939, to the San Francisco-Oakland Bridge Ry.

and renumbered MW-01. Scrapped 1948.

Numbers 11 and 12 were sold December, 1916. Scrapped 1939.

Passenger trailers 50-53 were probably former New York elevated railway cars.

Trailers 63-74 were built under J. G. Brill Co. order 19602.

Fifteen trailers, 54, 57-58, 63-74, were sold from 1916 through 6-30-1918. The Nevada Northern Ry. acquired six cars, three in 1917 and three in 1918; 64, 65, 67 and three others, numbers unknown. They rebuilt 65 with a baggage compartment. The Oklahoma, New Mexico & Pacific Ry. acquired two cars in 1917. Their number 6 was owned by Western Locomotive & Car Co. and leased from them in December, 1916. Their number 7 was wrecked or disposed of in 1918. Number 6 was resold to the Midland Valley Ry. 4-5-1923; renumbered T-4 it entered service 8-2-1923; sold for scrap 1-14-1939. The Midland Valley Ry. purchased two cars of the 63-74 series in 1917 which became their T-1 and T-2.

As of July, 1918, DPEL had four trailers remaining: 55, 59-61. 60 and 61 were sold by 12-31-1918. 55 and 59 were retired in 1942.

Version two on the disposition of locomotives 101-103 is the correct one. Visalia Electric Ry. 402 was sold 8-17-1918 (11-13-1919 per V. E. Ry.) to the Pacific Electric Ry. as their 1502. Pacific Electric Ry. 2nd 1501 was acquired directly from DPEL in 1916. PE 1501-1502 were scrapped in 9-1944 and VE 401 in 1946.

Rail Bus A-1 was sold in 1922.

ELECTRIC SHORT LINE RY.

Pages 520-524

The 6-21-1914 timetable showed a 1.00 mile branch line from Elmhurst Junction (milepost 7.93) to Elmhurst on Medicine Lake. Thls junction was just west of the present-day grade crossing of West Medicine Lake Drive. The Elmhurst area is now a park and a beach. At the earlier time is consisted of a few houses, a small store and one or more ice houses. The railway had constructed a small waiting shelter. The timetable listed three daily passenger trips, all made by westbound trains running up the branch line, then backing down to the main line, connecting with an eastbound train, then resuming the westbound trip. Many freight car loads of ice were shipped out over this branch line. Service began in 1914 and ended in 1922. At the latter date only one daily passenger round trip was being made. 1922 records list the length of the branch line as 3,500 L.F. or

or .663 miles. The right-of-way is still visible for most of its length, much of it existing as a street, Forestview Lane.

Wyes at Stubb's Bay and Wayzata were removed in 1921 and 1925 respectively.

Passenger service on the main line ceased during 1947 or 1949.

Page 526

The Missouri, Oklahoma & Gulf Ry. ordered five Drake cars from the St. Louis Car Co. on order 932 5-7-1912 and were numbered 100-104. One car, the interior damaged by fire, was returned to St. Louis Car Co. for repairs under order 1004 in May, 1913, which listed the car as number 304. The M. O. & G. Ry. was in receivership at this time, and as the car company would not release cars until paid for, this car was re-sold to the E.S.L. Ry., retaining the number 304.

G. E. demonstrator 3 had been sold about November, 1911, to the Gary, Hobart & Eastern Traction Co. as their number 1. Delivered in February, 1912, the car did not enter service until September, 1912. It was returned to G. E. in November, 1912; then sold back to them in May, 1913. G. E. rebuilt the car with the new engine and re-sold it to the E.S.L. Ry.

G. E. serial number 3776 was received by the Minnesota Northwestern Electric Ry. during August, 1914. This car most likely did not operate on the E.S.L. Ry.; number 306, built July, 1914, being purchased instead.

312 was sold to the Midland Valley Ry. during 1917 becoming their M-3. This car was sold for scrap November, 1954.

Three cars were sold by the Chicago, Peoria & St. Louis Ry. to the Oklahoma, Kansas & Missouri Inter-Urban Ry. of Miami, Oklahoma, during 1915-16. The latter company was re-named Oklahoma, Kansas & Missouri Ry. May, 1917, and became the Northeast Oklahoma Traction Co. November, 1919. Electrification of this railway was completed in January, 1921. It later became the Northeast Oklahoma Railroad.

G.E. No.	Date Built	CP&StL Number	OK&M Number	Date Purch.	Sold to ESL Ry. Date	Number	MW RR No.
3747	2-13	101*	108	3-16	4-22	314	34
3746	4-13	102*	107	3-16	4-22	318	38
3743	5-13	103	106	12-15	4-22	316	36

* Rebuilt by CP&StL Ry. Jacksonville (Ill.) shops with Railway Post Office compartments in 1914.

Thus cars 306 and 308 were probably re-numbered 30 and 32.

Four cars, 300, 302, 304, and 310 were disposed of as follows:

one destroyed in a fire at the shops 1-15-1916; two sold in 1916-17; one destroyed by fire 1918.

McKeen car 1 was built for the Soo Line during 1912 under order 127. However Soo Line records indicate the car was either built or purchased March, 1914, for use between Thief River Falls and Noyes on trains 204 and 205. This car had a 200 h.p. engine and weighed 77,100 lbs. Sold to the E.S.L. Ry. July, 1920.

Page 527

The Pullman Company built two gas-electric cars under order 4926 in 1925 for the Detroit, Toledo & Ironton R.R. Numbered 35 and 36, each was equipped with two Hall-Scott 150 h.p. engines mounted underneath the carbody, were 72' 6" long, weighed 66 tons, and seated either 46 or 48 persons. Both cars were of the Railway Post Office-Baggage-Passenger configuration. Number 36 was sold to the M. W. Ry. in 1940 and re-numbered 39. The car was subsequently destroyed by fire.

Steam Locomotives: Soo Line records indicate that 4-4-0 number 303, built by Baldwin Locomotive Works in 1886 or 1887, was sold to the E.S.L. Ry. in 1920. This was the fourth locomotive that should have appeared in the Minnesota Railroad & Warehouse Commission report of 6-30-1920. During the 1920's the Soo Line sold 2-6-0's 143 and 146 to the E.S.L. Ry. They had been built by the American Locomotive Company's Schenectady Works. During the early 1930's only three steam locomotives remained: 143, 146 and 201. 143 and 146 were retired in 1932 and 201 in 1934.

MINNESOTA NORTHWESTERN ELECTRIC RY.

Page 529

Construction began December, 1913, with the bridge over the Thief River in Thief River Falls. A grading contract was let April 3, 1914, to John Moberg of Bemidji who started work in May.

The gas-electric car arrived August 6, 1914. A few days later a trial run was made from Thief River Falls to Silverton.

1914 population of Goodridge was 300 persons. Industries comprised a grain elevator, large freight warehouse, and a stockyard. Grain elevators were located at Silverton and Mavie.

Timetable #1 listed two passenger round trips and one freight trip. The passenger trips required one hour running time one way. The freight trip required one hour and 50 minutes Eastbound, one hour and 25 minutes Westbound. The freight trip would carry passengers as an accommodation. Passenger trips left Thief River Falls at 7:15 a.m. and 3:45 p.m.; Goodridge at 8:30 a.m. and 5:00 p.m. The freight trip left Thief River Falls

at 9:45 a.m. and Goodridge at 1:45 p.m. A photograph showed the gas-electric car pulling eight box cars. One way passenger fare was 50 cents. Daily express service was offered by the Western Express Company.

Car 101 was sold for scrap to the Iron and Steel Products Co., Chicago, December 5, 1940.

SECTION VI INDUSTRIAL RAILWAYS

3. IRON ORE MINING RAILWAYS

Page 537

Inter-State Iron Co.

Locomotives 209-210 were purchased from the Iron and Steel Products Co., Chicago. 209 (ex 102) became W. C.F. & N. Ry. 187 while 210 (ex 101) became 186.

Page 538

Mesaba-Cliffs Mining Co.

Locomotives 301-303 were sold to the Chilean Nitrate Co. in 1955.

NORTHERN CAR COMPANY

Page 542

Apparently the firm was originally organized as Robinson & Hitt in Waterloo, Iowa. Three horsecars were built for Superior, Wisconsin, under this name in mid 1887. Re-organization followed under the name of Robinson & Moan. While located in Iowa the company built at least 100 cars (horsecars, and trailers for steam motor lines) for lines in Iowa (including Waterloo), Illinois, Wisconsin, Missouri, Nebraska, South Dakota and Minnesota.

After moving to Minnesota the firm organized as Northern Car Company under the laws of Iowa July 11, 1890. It was re-organized under the laws of Minnesota October 31, 1891. Incorporators were C. P. Jones, D. M. Gilmore, W. E. Steele and S. S. Thorpe. The Board of Directors comprised Jones, Gilmore, Thorpe, A. B. Robbins, J. M. Bartlett, N. F. Griswold, F. W.

Forman, and J. D. Blake. In 1892 Charles P. Lovell of Minneapolis was a Director.

Information on cars built for other systems extracted from various historical publications follows.

Sioux Falls

The South Dakota Rapid Transit & Ry. Co. began operating in June, 1890, with two single truck closed passenger motor cars and two open passenger trailers. Car 1, named "Linwood", was equipped with a Manier truck, used on the earlier Northern built cars. Presumably this truck was designed by and named after the superintendent of Northern Car Co. This system was abandoned in 1898.

Seattle

The Ranier Avenue Electric Railway built a seven mile line from Seattle to Columbia in 1890. They purchased four single truck double end closed passenger motor cars, 1-4, from Northern in 1890. This company later became part of the Seattle, Renton & Southern Ry. According to their records the cars were 25' 0" long, had Thomson-Houston F30 motors, and were equipped with Bemis (cars 1-2) or McGuire (cars 3-4) trucks. Cars 3-4 had been rebuilt with vestibuled platforms. A company inventory dated 2-19-1913 indicated that only 1, 3 and 4 remained, all as work equipment. Number 1 had been rebuilt in 1912: 21' long, 8' wide, one Brill 21-E truck with two G.E. 67 motors. Number 3 was used as a wrecking car; when scrapped the motors were used in the rebuilding of number 1. Number 4 was a line car: 21' 6" long overall, 20' 6" long body, 7' 6" wide, one Brill 21-E truck with two G.E. 1000 motors.

The West Street & North End Electric Ry. opened six miles of line from Seattle to Ballard in November, 1890. Twelve single truck double end closed passenger motor cars, 25' 3" long, McGuire and Tripp trucks, Thomson-Houston F30 motors; and one single truck freight motor car were acquired from Northern during 1890. Two passenger cars, 180-181, survived as Seattle Electric Co. 250-251. Both cars had been scrapped by 1912.

Rockford

West End St. Ry., later Rockford Traction Co., began operating in 1890 or 1891 with 13 passenger motor cars and three passenger trailers built by Northern Car Co. and John Stephenson Co. The company failed financially in 1895 and was consolidated with the Rockford Railway Power & Light Co. in 1898.

Portland, Oregon

The book FARES PLEASE by John Labbe covers the history of the city and interurban systems.

The Williamette Bridge Ry. Co. completed the Irvington line, using the Sprague system, in August, 1890. Due to the rapid expansion of street railway electrification, delivery of new cars from overloaded builders was unreliable. Cars for the new line did not arrive until October, 1890. In order to obtain cars for the Fifth St. line then under construction, three single truck passenger motor cars were purchased from Northern. The photograph of car 28 on page 89 in his book identified as a Northern built car is instead a Pullman built car.

The East Side Railway Co. opened an electric line on Hawthorne Ave. to E. 11th St. January 11, 1891. Extensions of this line opened November 2, 1891, June 5, 1892, and December, 1892. Three small double truck interurban passenger motor cars were purchased from Northern. The successor Portland Railway Light & Power Co. acquired the Salem, Oregon, system in June, 1906. Surplus Portland cars were shipped to Salem to "modernize" the fleet by December, 1907. All three Northern-built cars went to Salem. Photographs of P.R.L. & P. Co. 1040 and Salem 54 are on pages 136 and 152 respectively.

Bellingham

The Bellingham Bay Electric St. Ry. purchased three single truck closed passenger motor cars, 1-3, from Northern in 1891.

Fidalgo City/Seattle

Construction of the Fidalgo City & Anacortes Electric R.R. Co. in the state of Washington was financed by the Northwest Thomson-Houston Co. of Minneapolis-St. Paul. Reportedly the N.W.T.-H. Co. had a "large" order of cars specially built for them by Northern Car Co. at a cost of $6,000 each during 1890-91. The Thomson-Houston Co. subcontracted car and truck orders, and truck franchises, to all the major builders. During March, 1891, four of these cars arrived in Fidalgo City. Numbered 6-9, they were 34 ft. double truck double end closed deck roof cars mounted on McGuire #20 "Hubbard" trucks. Exterior colors were dark maroon with gold lettering and striping. Interior finish was antique oak. Cane seats accommodated 28 persons. First trip over the partially completed line was made by car 8 March 29, 1891. Sporadic operation followed, ending completely by December, 1891. N.W.T.-H. Co. repossessed the cars and power plant machinery in April, 1892. The four cars were shipped to Seattle and stored in the North Seattle carhouse of the Consolidated St. Ry.

Consolidated St. Ry. leased the cars for one week in July, 1892, due to a car shortage. The carhouse was destroyed by fire on

June 20, 1895; it is thought that cars 6-8 were lost in the conflagration. Car 9 was saved which later went to the Third Street & Suburban Ry., Seattle, where it received some modifications. The platforms wre lengthened and Brill 22-E maximum traction trucks fitted. The car became Seattle Electric Co. number 93 in 1897 and rebuilt in 1902 into chair car number 28 for use in charter service and official company inspections. It was reported sent to Everett, Washington, in 1913 for rush hour service. A company inventory dated 11-1-1915 listed the car as fitted with longitudinal seats for regular service in Seattle. Scrapping occurred shortly thereafter.

Sioux City

Riverside Park Electric Railway contracted with Northern to build six motor cars and six trailers, all to be mounted on McGuire double trucks. The trailers were apparently never built, the railway instead using 14 trailers retained from the former steam operation. The motor cars were numbered 1-6. Later transferred to Sioux City Rapid Transit Co.'s elevated railway they were re-numbered 100-105. After abandonment of the elevated line the cars were used on the lines of the Sioux City Traction Co. Number 100 was later rebuilt to an express motor car.

Tacoma

The Tacoma & Steilacoom Ry. acquired some suburban cars with 24 ft. closed bodies in 1891.

Milwaukee

Henry Villard's Milwaukee St. Ry. decided to make extensive trials before deciding upon and ordering standardized equipment. Two sample cars, one single truck closed car and one single truck open car, were ordered from each of 12 carbuilders. Northern Car Co. delivered its two cars in early 1892. MSR subsequently became part of The Milwaukee Electric Railway & Light Co. Of the 12 sample closed cars, nine were left as of 1900 numbered 254-262, the same as on MSR. The Northern built car was one of them, but after 1905 carried number 61. At that time it had an 18 ft. long body, one Peckham truck with two Edison #8 motors. It was converted to a bunk car for maintenance of way use in 1908; the car lasted until 1931 when it was scrapped. Of the 12 sample open cars, four were left as of 1900 numbered 450-453. Number 450 was the Northern built car. As of 1905 it was 25' 4" long with eight benches, one McGuire truck and one K type controller. The car was scrapped in 1910.

TMER&L Co. also had one double truck twelve bench open passenger motor car, number 539, built by Northern Car Co. in 1893 according to their records. As the Northern plant was destroyed by fire in 1892 this date is incorrect. This car may be

Minneapolis St. Ry. 539, from their order of double truck open cars built by Northern in 1892, shipped to Milwaukee in 1893. Thomas Lowry at this time was negotiating a loan for TCRT from Henry Villard. The 1900 roster listed the car as 37´ long, 8´ 2" wide, with Brill maximum traction trucks, but used as a trailer. Re-numbered 1539 in 1906 the car was then in use as a motor car with one K-11 controller and retaining the maximum trucks. The car was scrapped in 1910.

SECTION VIII CABLE RAILWAYS

Page 548

DULUTH BELT LINE RY.

The company reported to the Minnesota Railroad & Warehouse Commission that 2300 L.F. of line was abandoned in 1909.

SECTION IX NORTH DAKOTA ELECTRIC RAILWAYS

Page 549

VALLEY CITY STREET & INTERURBAN RY.

Original equipment may have come from the Chicago & Milwaukee Electric Ry. Passenger-baggage motor car 1 is supposedly their first #22, ex-first #12, originally built by Pullman´s Palace Car Co., 8-1898. The C. & M. E. Ry. also disposed of six single truck open trailers, built by St. Louis Car Co., 7-1898, for use in Waukegan, about this time.

Page 552

CAPITOL CAR LINE

This line was listed in Moody´s Manuals as the State of North Dakota Electric Railway. During February, 1917, discontinuance of operation was being discussed but no action taken. Car 1 was placed in storage about 1921 where it remained until 1929. Space was needed by the highway department so the body was moved to the picnic grounds behind the capitol building for use as a shelter.

SECTION XI

LACROSSE CITY RAILWAY

LACROSSE, WISCONSIN

HORSECARS

The LaCrosse St. Ry. was organized June 19, 1878. Operation of horsecars over the first line began July 4,1879. This line ran from 3rd and Main Sts., north on 3rd St., over the causeway, then the Plank Road, and up Mill St. (later Copeland Ave.) to WIndsor St., a distance of 1.84 miles. The northern terminal was in front of the office of the LaCrosse Lumber Co. where their "Big Mill" was located. At this time there were eight or more sawmills located on the North side of the LaCrosse River. The horsecar barn and stables were built at Mill and Car Sts. Five horsecars were purchased in 1879; three were from Chicago and two from St. Louis, the latter arriving later in the Fall. One additional car arrived in 1880. Some were closed cars with 10 ft. bodies seating eight persons on longitudinal benches; some were open cars 15 ft. long seating 16 persons on "cane seat chairs" with weather protection by canvas side curtains.

In a short time the line was extended from Mill St. two blocks East to Caledonia St., then North on Caledonia to Logan St. This entire line was referred to as the "North Side" line.

The City St. Ry. (another source says the LaCrosse City Ry.) was organized in June, 1881. Accounts vary as to the route of the horsecar line completed in 1882 by this company. One states that the line was built from 2nd and Vine Sts. (C. M. & St. P. Ry. depot) to Main St., East to 4th St., South on 4th to the Shooting Park Southeast of the John Gund brewery, 2.6 miles long. A more explicit account reports the route from 2nd and Vine South on 2nd to Pearl St., East to 4th St., South on 4th to Cass St., East on Cass to 5th St.; South on 5th to the Mormon Coulee Road (now South Ave.), then on that road to the Green Bay & Western R.R. depot at 9th St. In addition a stub line ran on 4th St. from Pearl St. North to Main St. Horsecar barn and stables were located at 7th St. and Mormon Coulee Road. This was referred to as the "South Side" line.

The two companies were merged a few years later. One account states the LaCrosse St. Ry. and City St. Ry. were merged into the LaCrosse City Ry. in 1885. Another account says the LaCrosse St. Ry. and LaCrosse City Ry. were merged under the name of the latter company about 1888.

In 1886 the total track mileage was between five and six. About

seven cars were operated, using one horse or two small mules per car. Mules were changed each trip in Summer and every other trip in Winter.

In 1888 the "North Side" line was extended North to Sill St., and on Sill St., Charles St., Gillette St., George St., to George and Gohres Sts. This extension was built to accommodate workers at the C. B. & N. Ry. (later C. B. & Q. Ry.) roundhouse and the McDonald Mill at George and Gohres Sts.

Also during 1888 a line was built on Market St. from 7th St. (sic) to 15th St., operated as a stub line.

When the LaCrosse Inter-State Fair was organized in 1890, a line was built from 4th and Main Sts. on Main St., 12th St., State St., and on State St. to the Fair Grounds. Later this route was changed, track being abandoned on State St. with new track built north on 12th St. and Forest Ave. to LaCrosse St. then East on LaCrosse St. to the Fair Grounds entrance.

The 1890 U. S. Census reported 6.51 miles of line, 7.47 miles of track, 19 horsecars (numbered 1-19), and 78 horses and mules. An average of 14 cars were operated at one time.

ELECTRIFICATION

The first electric cars operated in the Fall of 1890 on the "North Side" line. Electrification of the remaining portions of the system was not completed until the Fall of 1893.

A new carhouse, repair shop and power house were built at 3rd and LaCrosse Sts.

Horsecars were then used as trailers. A train of one motor car pulling three trailers was not unusual. Eventually the horsecar bodies were sold to local residents. One body was purchased by C. S. Van Loon. A photo of this car taken in a 1924 parade shows it intact with wheels, probably restored by the company for the occasion.

TRACK CONSTRUCTION

During the 1893-1907 time period, exact dates unknown, track was built or abandoned on the following streets.

On	From	To
Construction:		
3rd St.	Main St.	Cass St.
Cass St.	3rd St.	4th St.
Market St.	5th St.	7th St.
7th St.	Market St.	South Ave.
Vine St.	3rd St.	4th St.

4th St.	Main St.	Vine St.
Market St.	15th St.	16th St.
16th St.	Market St.	Jackson St.
Jackson St.	16th St.	14th St.
14th St.	Jackson St.	Farnam St.
Abandoned:		
2nd St.	Vine St.	Pearl St.
Pearl St.	2nd St.	4th St.
5th St.	Market St.	South Ave.
South Ave.	5th St.	7th St.

During 1893 track on Charles and Gillete Sts. was removed and relocated on Mill St. from Charles to George Sts. and on George St. from Sill to Gillette Sts.

In 1895 track was extended from South Ave. on Green Bay (9th St.) East on Green Bay to 22nd St., and South on 22nd to Barlow St.

Two projects were undertaken during 1906. Track was abandoned on George St. from Livingston St. to Gohres St. Single track was built on Sill St. from George to Loomis Sts., on Loomis to Livingston, and on Livingston back to George St., forming a loop. Track was also built on South Ave. from Green Bay (9th St.) to 14th St. (Dayton St.).

U. S. Census data:	1902	1907
Track Mileage:		
first main track	12.19	11.57
second main track	2.06	2.73
sidings	.19	.36
total track	14.44	14.66
Carhouses	1	2

1.43 miles of track had been built and opened during 1907. All overhead trolley was span wire construction.

In 1908 track was built on Main St. from 12th St. (West Ave.) to 23rd St., on 23rd to Market St., and East on Market to Losey Road.

The company was purchased by the Wisconsin Railway, Light & Power Co. on February 10, 1913. Later in 1913 the track on Copeland Ave. (Mill St.) between Monitor St. and St. Cloud St. was removed and relocated on Rose St., one block East, in order to get tracks on the viaduct over the C. M. & St. P. Ry. This was all double track.

Complaints by the city to the Railroad Commission of Wisconsin

led to extensive studies of the service provided. This resulted in orders being issued in September, 1916, for additional track construction to accomplish through-routing of lines. Most of this construction was completed during 1917.

Construction	On	From	To
single track	11th St.	Market St.	Farnam St.
single track	16th St.	Jackson St.	Denton St.
second track	Main St.	12th St.	16th St.
second track	5th St.	Cass St.	Market St.
second track	Market St.	5th St.	Existing double track between 5th and 6th Sts.
crossover	at 16th and Main		
crossover	at 4th and Main		
curve	from Westbound on Main to Northbound on 4th.		
{abandon	Market St.	11th St.	16th St. }
{single	Jackson St.	14th St.	16th St. }
{track	14th St.	Jackson St.	Farnam St. }

Additional track construction was undertaken during 1920. Single track with turnouts built on Badger St. from Forest St. to 4th St., and on 4th from Badger St. to Vine St. Single track was abandoned on 12th St. (West Ave.) from Badger to Main Sts.

Track on Green Bay from South Ave. to 22nd St., and on 22nd to Barlow St. was abandoned at an unknown date, but probably about this 1917-20 time period.

According to directory information dated 7-1918 and 12-1923 the system comprised 16 miles of track of which 5.2 miles were in paved streets.

Name of the corporation was changed in January, 1926, to Mississippi Valley Public Service Co.

The streetcar lines were abandoned over a long period of time. World War II intervened to save the last line for a few more years.

1929: "Myrick Park" line.
1930: "South Side" line.
1932: "Market St." line. (1931 per one source.)
1932 or 1933: "23rd St." line.
1936: "16th St." line. After this abandonment the only track used in the downtown area was the 3rd St., Main St., 4th St., Vine St. loop.
1945: "North Side" line; Saturday, November 10th.

POWER SYSTEM

Power Station Equipment

One 500 h.p. Allis-Chalmers engine.
One 600 h.p Scotch boiler.
Two General Electric Co. generators, with a total capacity of 500 KW (1918); 800 KW (1923).

One Substation

One rotary converter and one motor-generator set with total capacity of 750 KW. Trolley voltage was 600 volts D.C.

OPERATIONS

Prior to 1917 the various lines were not through-routed, and several were operated as shuttle lines.

"North Side" line.
"South Side" line.
"16th Street" line.
"Market Street" line.
"23rd Street" line.
"Oak Grove Cemetary" or "Myrick Park" line.

The last three lines foregoing used the original 1893 single truck cars with side seats. During rush hours extra cars of this same type were operated on the other lines as well.

Revised routings put into effect after the 1917 and 1920 track construction projects were as follows.

"North Side-16th St." line
From the North side over present route to 3rd-Main-16th-16th and Denton. Return via 16th-Main-4th-Vine-3rd. Ten minute service from 5:50 a.m. to 11:00 p.m.; then 20 minute service until 12:20 a.m.

"South Side-23rd St." line
From the South side over South Ave.-7th-Market-5th-Cass-4th-Main-23rd-Market-Market and Losey Road. Return via 23rd-Main-3rd-Cass-5th-Market-7th-etc. Ten minute service from 5:45 a.m. to 10:55 p.m.; then 20 minute service until 11:55 p.m. and a last car at 12:20 a.m.

"Market St.-Myrick Park" line
From 11th and Farnam-11th-Market-5th-Cass-4th-Badger-Forest-LaCrosse-Fair Grounds. Return via Badger-4th-Vine-3rd-Cass-5th-Market-etc. Ten minute service from 5:50 a.m. to 11:00 p.m.; then 20 minute service until 12:20 a.m.

This ten minute service required 16 cars, six cars on the first line, five cars on the second line, and five cars on the third line.

EQUIPMENT

Only basic information on the equipment is given as a detailed roster was printed in Central Electric Railfans' Association

publication #111 BADGER TRACTION, page 149.

Number	Builder	Date	Type
20-30	St.Louis Car Co.	1893	25'9" single truck closed motor
31	St.Louis Car Co.	1894	31'3" single truck open motor
32-33	Brownell Car Co.	189?	27' single truck closed motor
1	McGuire-Cummings	1895	snow sweeper
34	Company shops	1896	34'single truck closed motor (1)
6	?	?	single truck closed motor (2)
35-38	St.Louis Car Co.	1903	33'2" single truck closed motor
01-04	St.Louis Car Co.	1893	23'single truck open trailer (4)
40-43	American Car Co.	1907	40'2" double truck closed motor
9-12	J. G. Brill Co.	1907	26'1" single truck open trailer
44-46	American Car Co.	1908	single truck closed motor
2	McGuire-Cummings	1908	snow sweeper
47-48	American Car Co.	1910	single truck closed motor
49-50	St.Louis Car Co.	1912	single truck closed motor (6)
51-57	St.Louis Car Co.	1916	42' double truck closed motor (7)

Notes:
(1) Rebuilt from two horsecars spliced together. Nicknamed "Long Annie".
(2) Converted horsecar.
(3) A newspaper article dated 11-5-1900 reported that a LaCrosse firm was building a 32' long railroad or elevated type car for the company which would be a new style car. No other information on this; perhaps never completed.
(4) Acquired from Madison Railways (Wisconsin) after 1902 but before 1907. Numbered 10-13 in Madison.
(5) No record of a car 39 has been found.
(6) Order 915 dated 2-1912.
(7) Order 1090 dated 2-1916.

U. S. Census data:	1902	1907
closed passenger motor cars	15	23
open passenger motor cars	1	1
open passenger trailers		8
snow sweeper	1	1
total	17	33

All were two-motor cars except one, 34, which had one motor. The closed motor cars were 6,20-30, 32-34 in 1902; the additional eight cars by 1907 were 35-38, 40-43. The open passenger motor car was 31, and the open trailers 01-04, 9-12. Cars 35-38 were used on the "North Side" line until 1907 when they replaced by 40-43; the former were then transferred to the "South Side" line.

A report by the Railroad Commission of Wisconsin of an inspection made by them in December, 1917, listed these accomplishments:
--had put into service seven new double truck, pay-as-you-enter cars with air brakes. (51-57)
--had remodeled and equipped with air brakes four older double truck cars. (40-43)

--had remodeled all single truck cars having transverse reversible seats. (Probably 35-38, 44-48)
--had entirely removed from the property all old single truck cars with side seats. (Probably 20-30, 32-34)
--all cars had been repainted pullman green with yellow trim.
--all cars operated on a pay-as-you-enter basis had been equipped with Cleveland fare boxes.

A report by the company to the Railroad Commission dated 3-1918 listed 18 cars in service: 35-38, 44-48, 49-50, and 51-57. A subsequent letter dated 5-1918 listed only 17 cars, number 48 being omitted. A transit directory dated 7-1918 listed 22 passenger motor cars (35-38, 40-48, 49-50, 51-57) and four other motor cars.

A fleet of modern single truck Birney cars was purchased from St. Louis Car Co. from 1920 to 1926. All were 28' 1/2" long, weighed 8 1/2 tons, seated 32 persons, and equipped with one St. Louis 7 truck.

Numbers	Order	Date
1-8	1225	1920
9-11	1279	1922
12,14	1417	1926

A directory dated 11-1923 reported 22 passenger motor cars and four other motor cars. Ten cars were one-man operated.

One double truck car was scrapped 1928.

The last cars in use were 51-57 on the "North Side" line until 1945.

LACROSSE & ONALASKA ST. RY.

According to the 1890 U.S. Census this ine was 2.88 miles long with 2.92 miles of track, two horsecars and six horses or mules. By the time of the 1902 U.S. Census the line had been electrified.

Data from the 1902 and 1907 U. S. Census is identical. 2.67 total track miles, no sidings, of which 0.74 miles was on private right-of-way. 2.00 miles had side bracket construction and 0.67 miles span wire construction. One closed passenger car, number 1, a single truck car, acquired used, was owned.

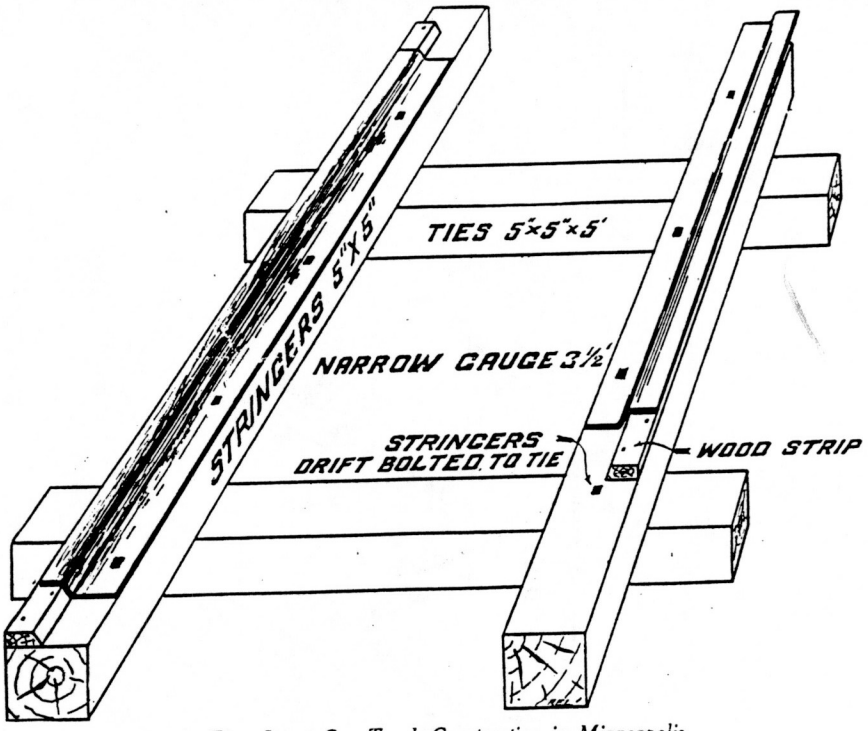
A description of the route, dated 1907, was: from George and Gohres Sts, on George St. to Campbell St., on Campbell to an unnamed street in a new addition connecting with the County Road, thence to the West end of Main St. at J St. in Onalaska. Since the LaCrosse City Ry. had relocated track at the North end of its "North Side" line in 1906, by 1907 the L. & O. St. Ry.

would have had to relocate its connecting track on Loomis St. from Campbell St. to Livingston St.

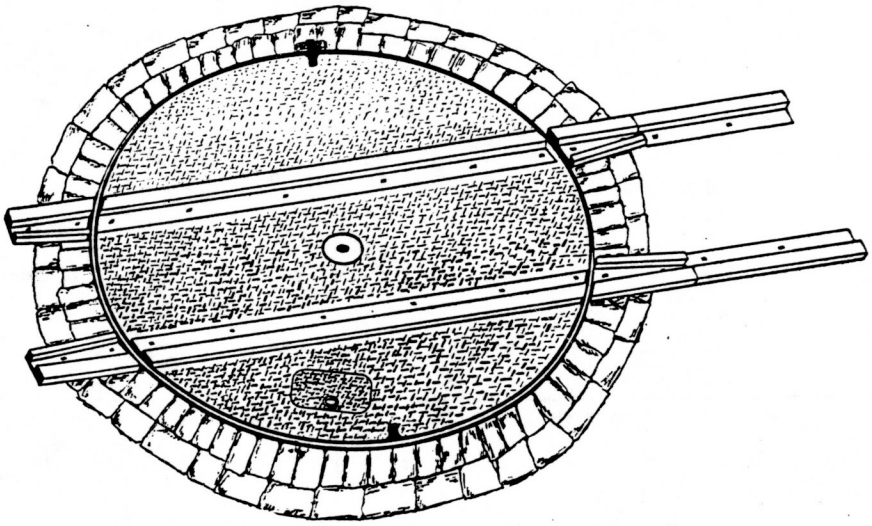
A single truck closed motor car, deck roof, number 2, was acquired new from American Car Co. in 1911.

The Wisconsin Railway, Light & Power Co. leased the line about 1914. The directory of 7-1918 listed 2.37 miles of track and two passenger motor cars. That of 11-1923 listed the same track mileage but only one passenger motor car.

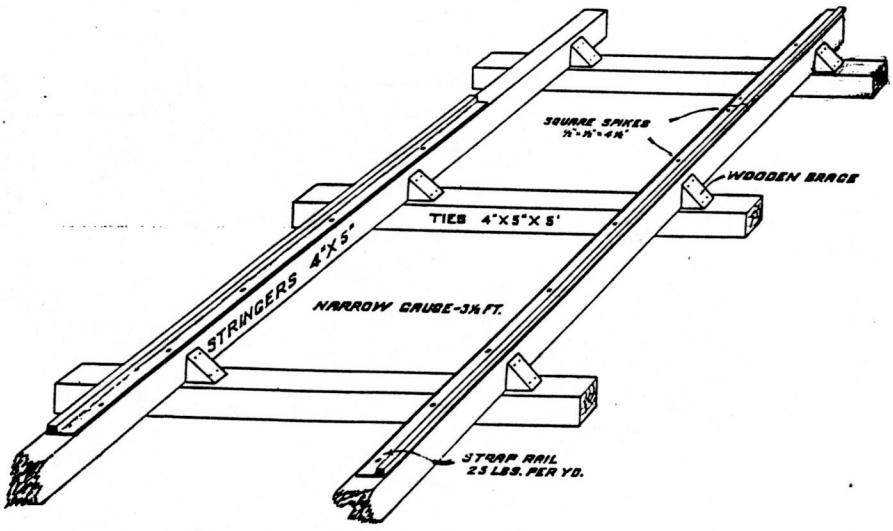
Abandonment took place December 31, 1930.



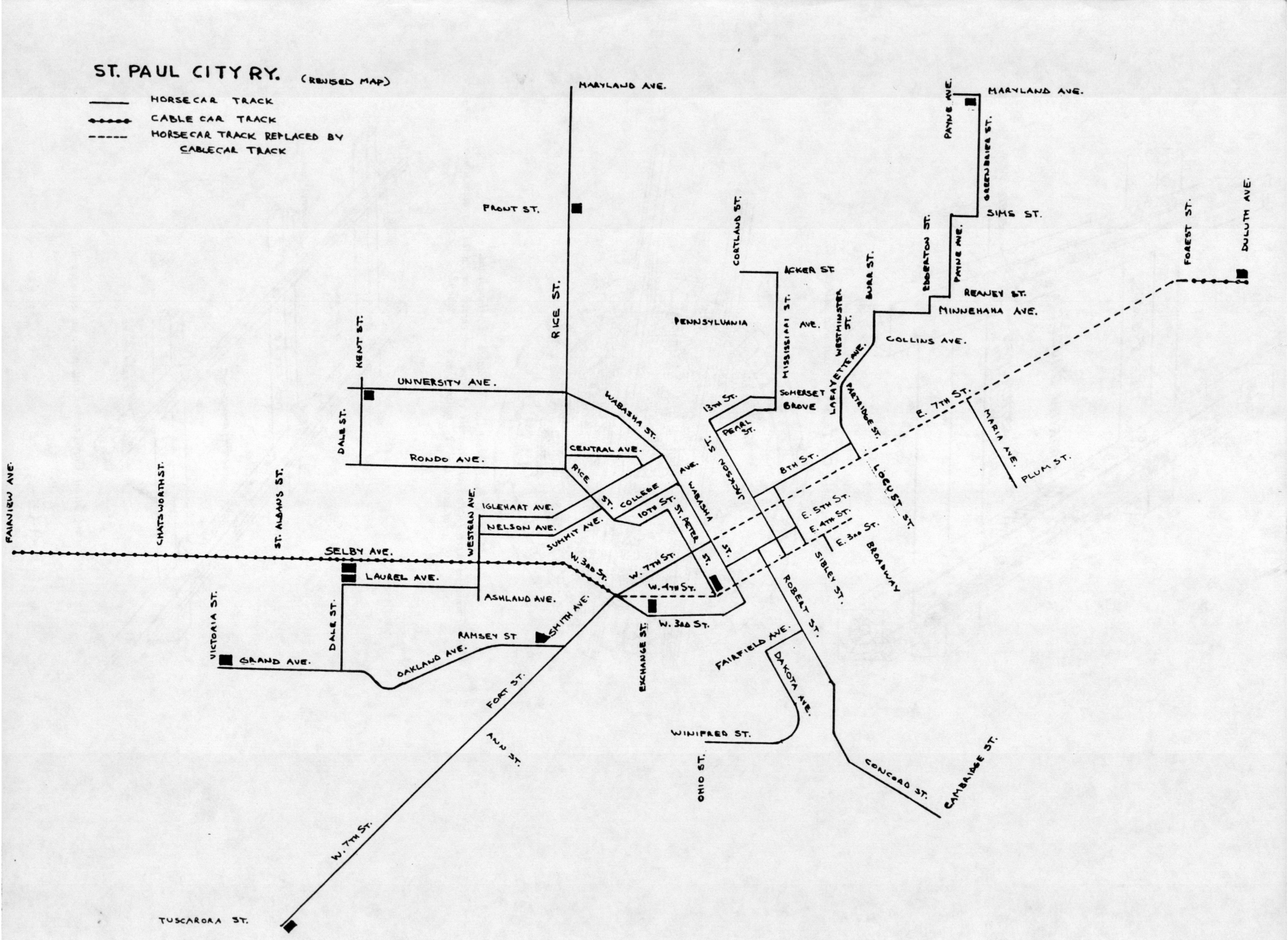
First Street Car Track Construction in Minneapolis.



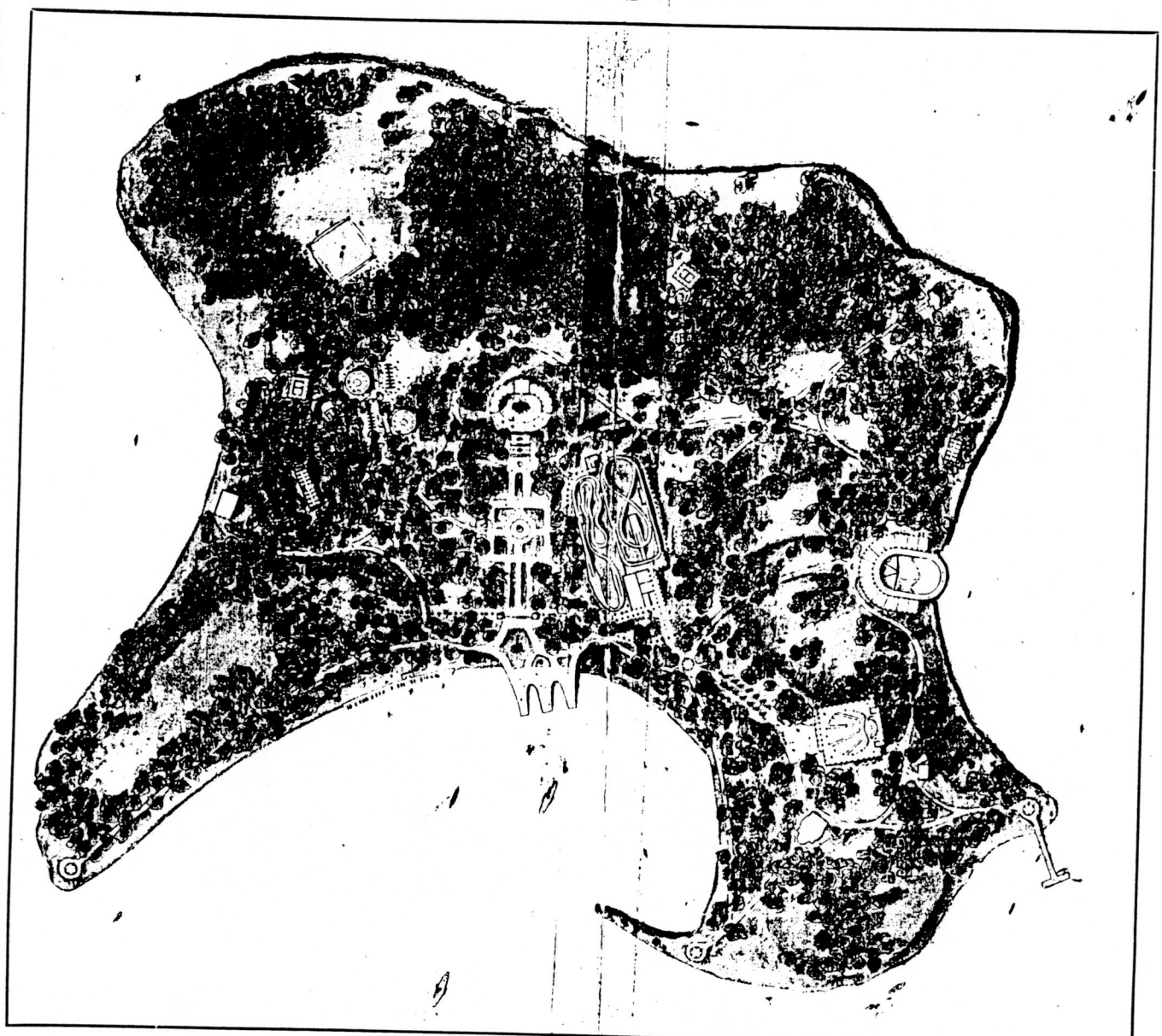
Type of First Street Car Turntable in Minneapolis.
These Turntables were located at terminals of lines and cars were turned on them instead of using the "Y" system that obtains today.



Second Street Car Track Construction in Minneapolis.


ST. PAUL CITY RY. (REVISED MAP)
HORSECAR TRACK
CABLE CAR TRACK
HORSECAR TRACK REPLACED BY CABLECAR TRACK
MARYLAND AVE.
PAYNE AVE.
GREENBRIER ST.
SIMS ST.
FOREST ST.
DULUTH AVE.
FRONT ST.
CORTLAND ST.
ACKER ST.
RICE ST.
KENT ST.
PENNSYLVANIA AVE.
MISSISSIPPI ST.
WESTMINSTER ST.
BUSH ST.
EDGERTON ST.
REANEY ST.
MINNEHAHA AVE.
COLLINS AVE.
LAFAYETTE AVE.
PARTRIDGE ST.
UNIVERSITY AVE.
DALE ST.
WABASHA ST.
13TH ST.
SOMERSET GROVE
PEARL ST.
E. 7TH ST.
MARIA AVE.
PLUM ST.
CENTRAL AVE.
RONDO AVE.
RICE ST.
JACKSON ST.
8TH ST.
LOCUST ST.
FAIRVIEW AVE.
CHATSWORTH ST.
ST. ALBANS ST.
WESTERN AVE.
IGLEHART AVE.
NELSON AVE.
SUMMIT AVE.
COLLEGE ST.
10TH ST.
ST. PETER ST.
WABASHA AVE.
E. 5TH ST.
E. 4TH ST.
E. 3RD ST.
BROADWAY
SELBY AVE.
W. 3RD ST.
W. 7TH ST.
W. 4TH ST.
SIBLEY ST.
ROBERT ST.
LAUREL AVE.
ASHLAND AVE.
VICTORIA ST.
DALE ST.
SMITH AVE.
RAMSEY ST
GRAND AVE.
OAKLAND AVE.
EXCHANGE ST.
W. 3RD ST.
FAIRFIELD AVE.
DAKOTA AVE.
FORT ST.
WINIFRED ST.
ANN ST.
OHIO ST.
CONCORD ST.
CAMBRIDGE ST.
W. 7TH ST.
TUSCARORA ST.

Detail Plan of Big Island Park



Drawn by Ray Buffington.

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IT is the most beautiful picnic park in all the Northwest. It has unexcelled facilities to entertain Lodge, Club, Sunday School or Society picnics of any kind. Kitchens, toilet rooms, shelter houses, water supply, all include the best and latest improvements for comfort and convenience.

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St. Paul Telephone, N. W. 2616.

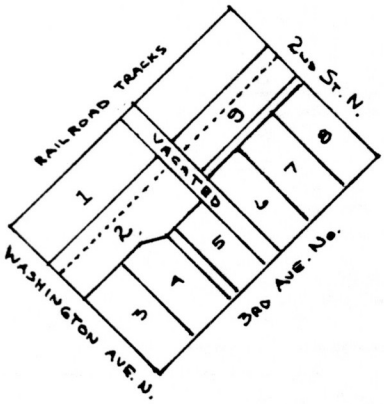
WILLARD J. HIELD,
General Manager.

A. W. WARNOCK,
General Passenger Agent.

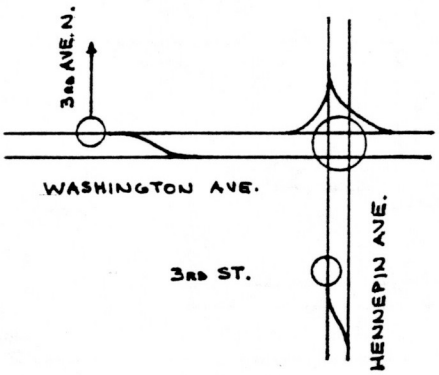
MINNEAPOLIS ST. RY. TRACK LAYOUTS

HORSECAR SYSTEM

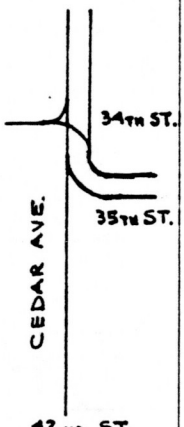
FIRST HORSECAR BARN SITE



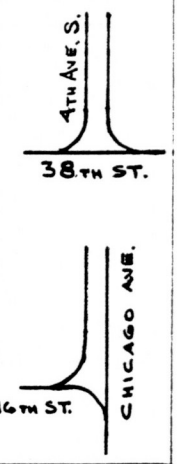
INTERSECTION DETAIL



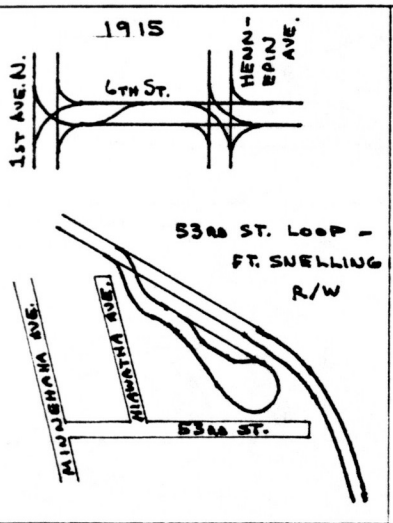
1912 & 1914



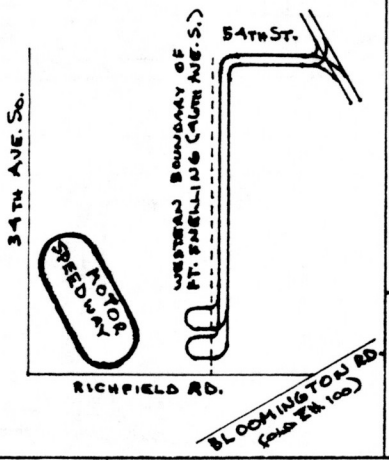
1915



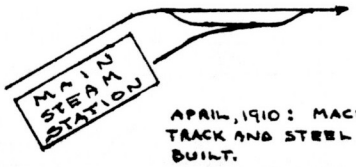
1915



1915 MOTOR SPEEDWAY SPUR

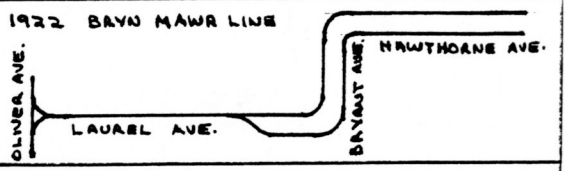


1907 MAIN STEAM STATION

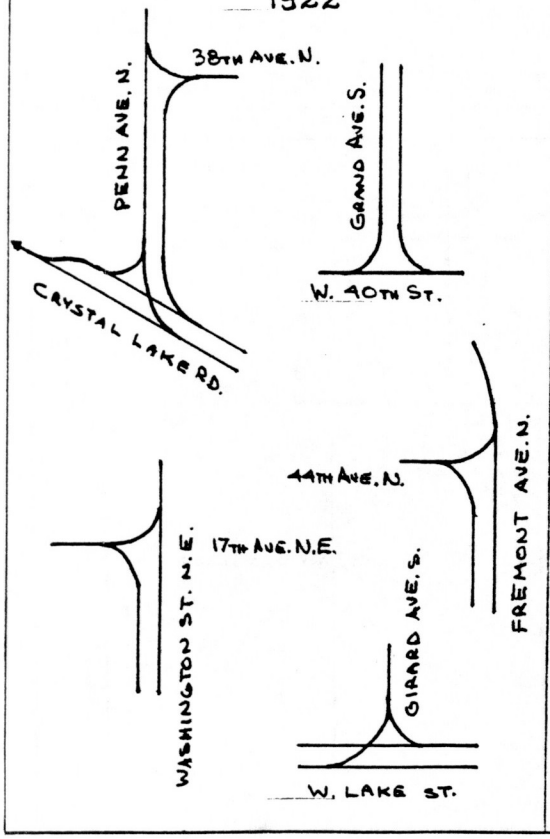


APRIL, 1910: MACHINERY SPUR TRACK AND STEEL TRESTLE BUILT.
1912: NEW SPUR TRACK AND STEEL TRESTLE BUILT.

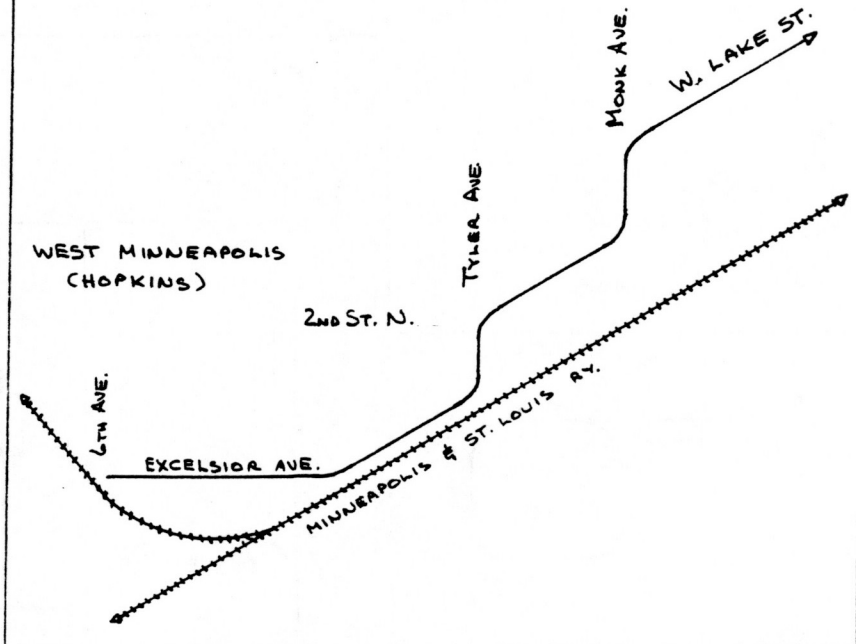
1922 BRYN MAWR LINE



1922

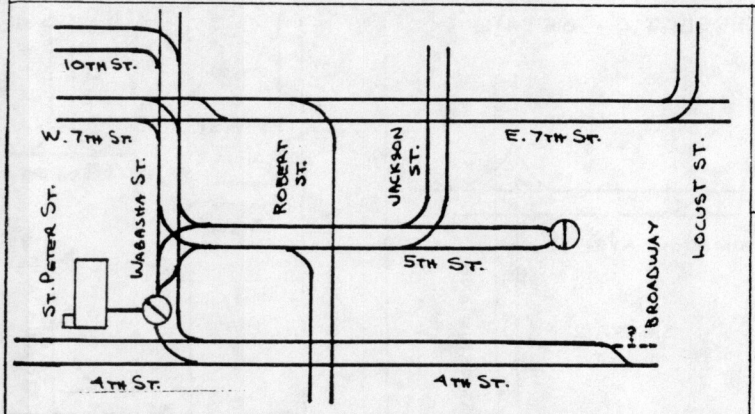


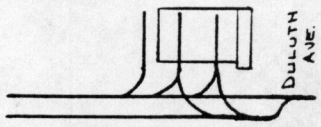
MINNEAPOLIS LAND & INVESTMENT CO. LINE FROM ST. LOUIS PARK TO HOPKINS 1898-1907
LOCATION SPECIFIED IN 1897 WEST MINNEAPOLIS ORDINANCE. (SEE MAP ON PAGE 94 OF THE BOOK.)

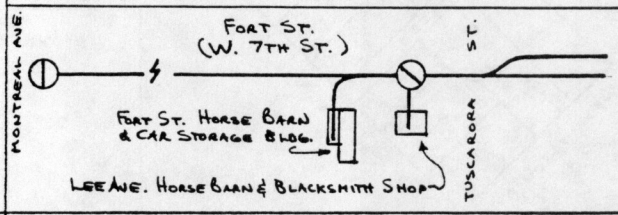


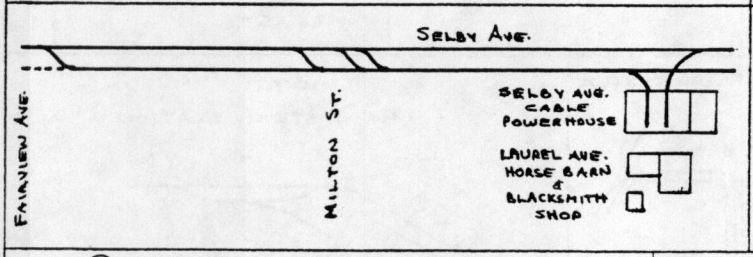
ST. PAUL CITY RY. TRACK DETAILS

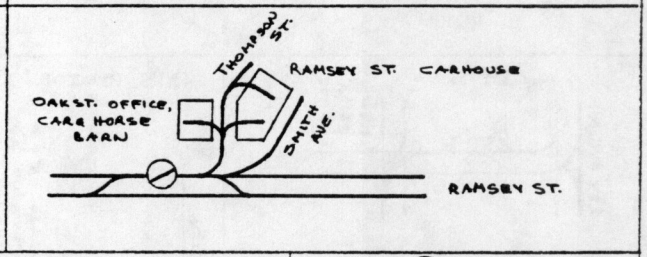
HORSECAR AND CABLECAR TRACK- PER A.L. DRUM & CO. VALUATION

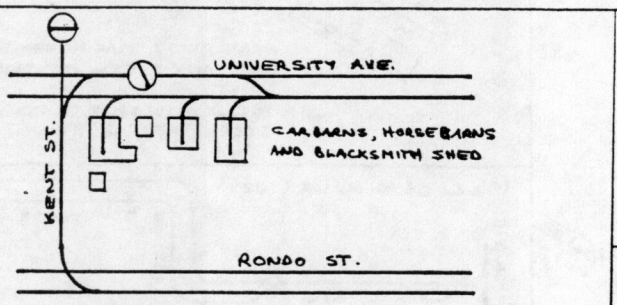


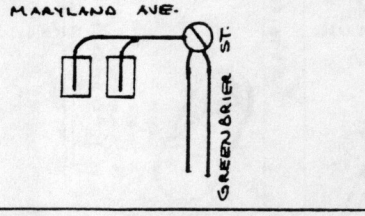


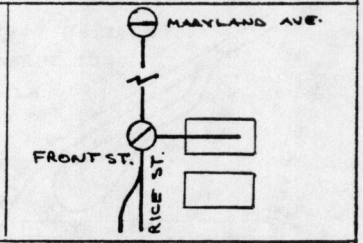








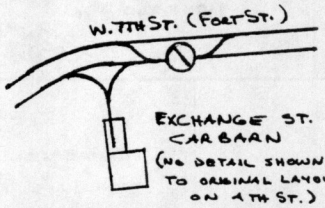


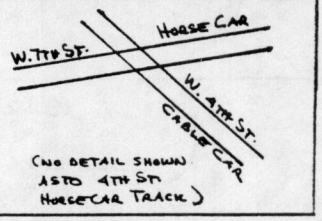


ALL OTHER TRACK INTERSECTIONS WERE SIMPLE. EXAMPLE:

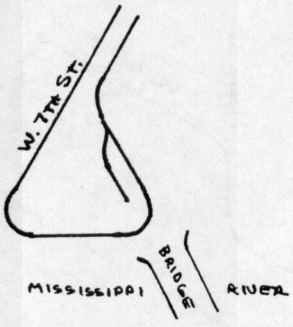
TURNTABLES AT ENDS OF LINES WERE SHOWN AS:

OR

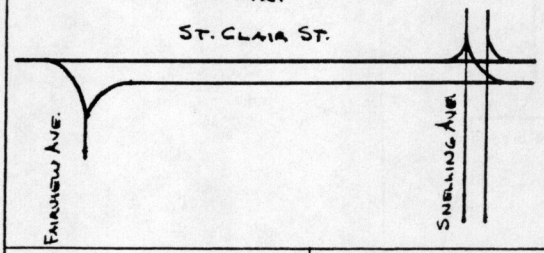




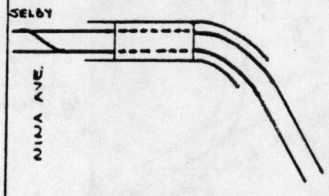
FORT SNELLING LOOP 1909



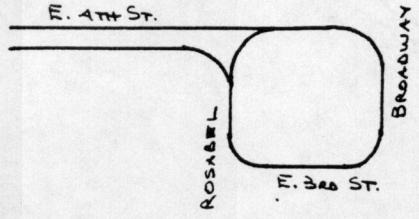
1921



SELBY TUNNEL 1921



JAN. 1919



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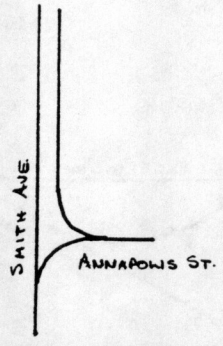

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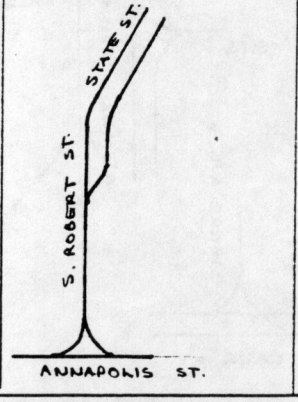
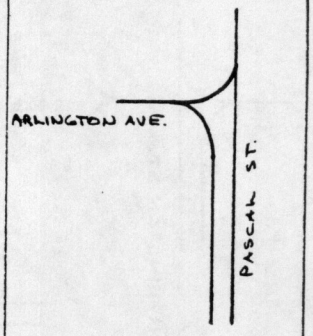
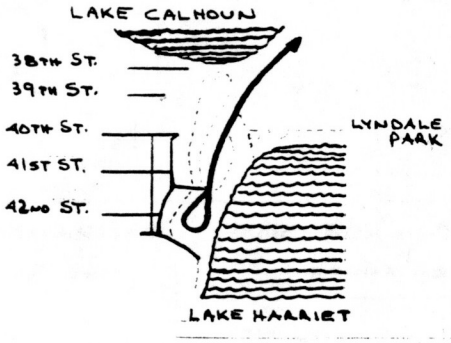


1924

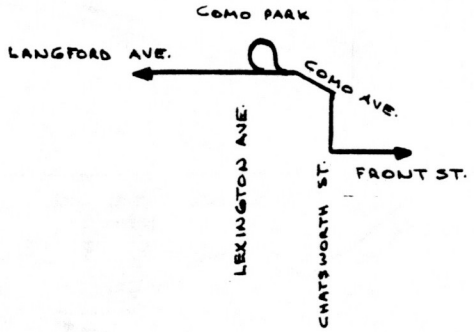


MISCELLANEOUS DETAILS

MINNEAPOLIS ST. RY.
ORIGINAL LAKE HARRIET LOOP - 1900

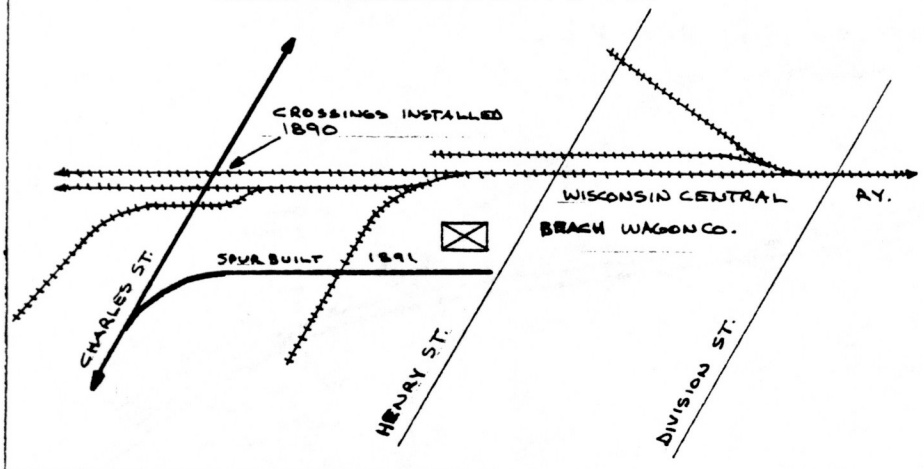


ST. PAUL CITY RY.
COMO PARK LOOP - 1900



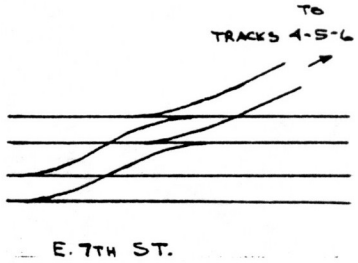
NORTH ST. PAUL R.R.

NORTH ST. PAUL 1890-1891



ST. PAUL CITY RY.
E. 7TH ST. STATION

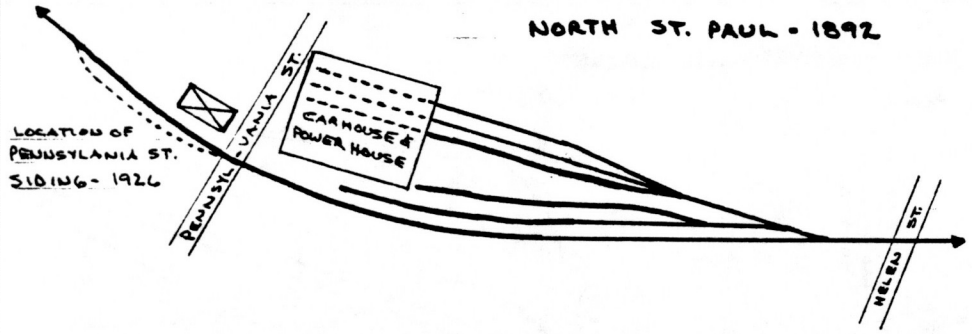
(PAGE 126)



CORRECT LAYOUT OF CROSSOVER ON E. 7TH ST.

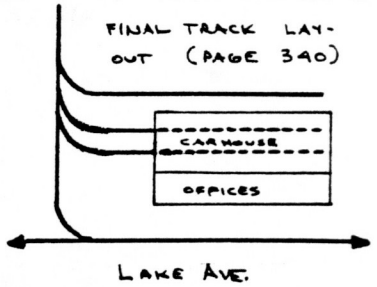
ST. PAUL & WHITE BEAR R.R.

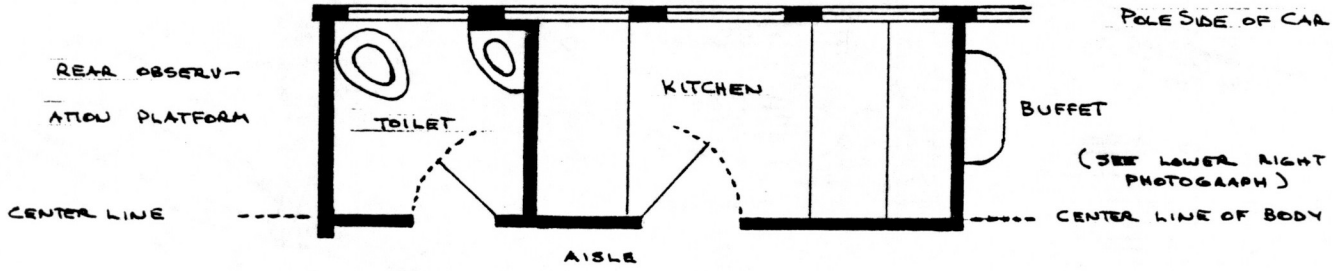
NORTH ST. PAUL - 1892



DULUTH ST. RY.

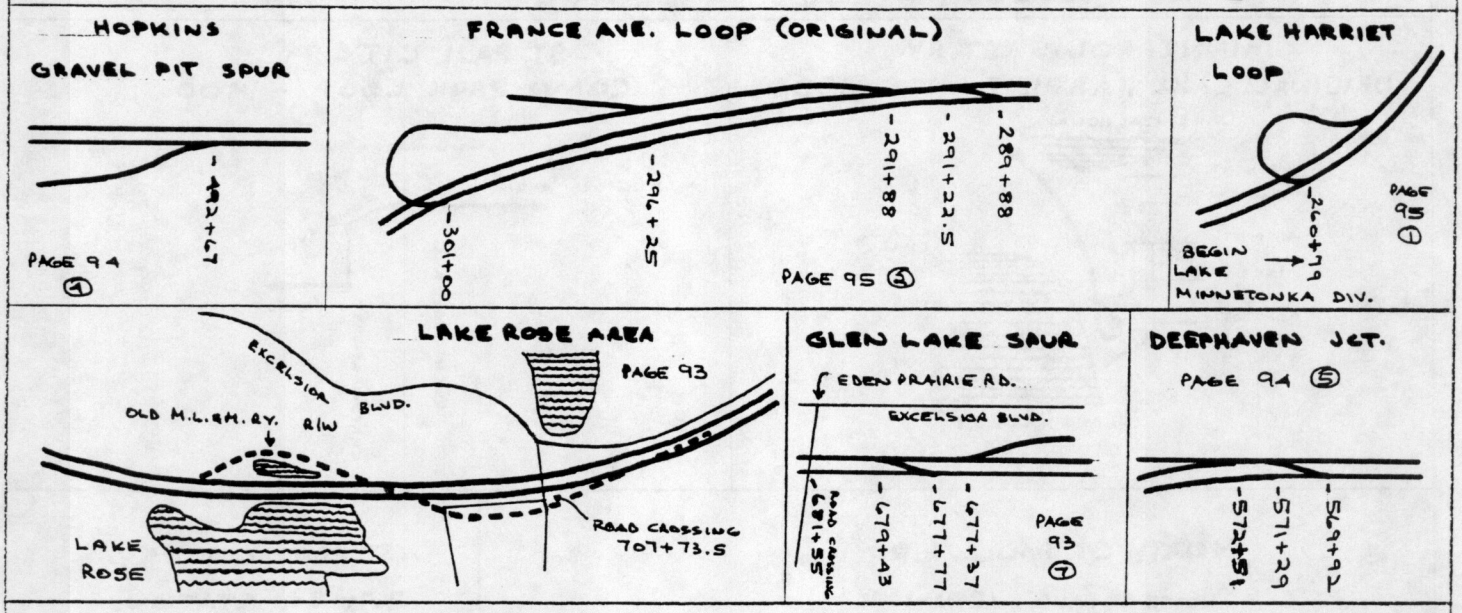
PARK POINT CARHOUSE





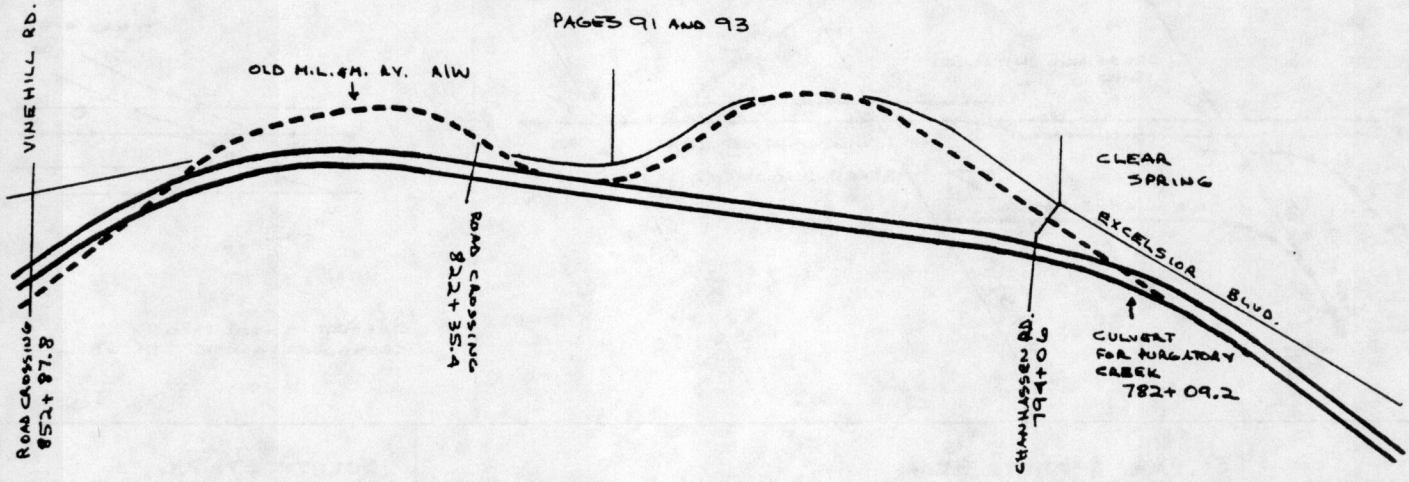
T.C.R.T. CO. - THOMAS LOWRY'S PRIVATE CAR - INTERIOR DETAIL (PAGE 244)

LAKE MINNETONKA DIVISION TRACKAGE DETAILS - 1



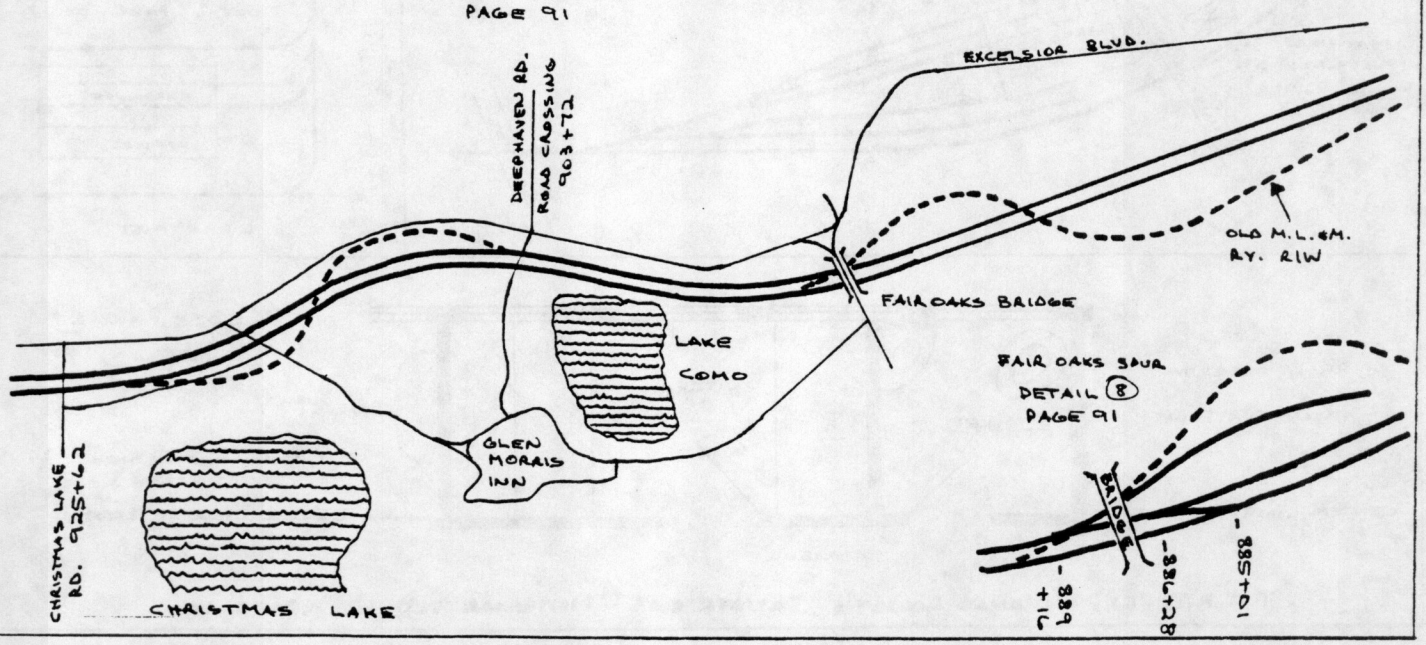
CLEAR SPRING TO VINE HILL

PAGES 91 AND 93



VINE HILL TO CHRISTMAS LAKE

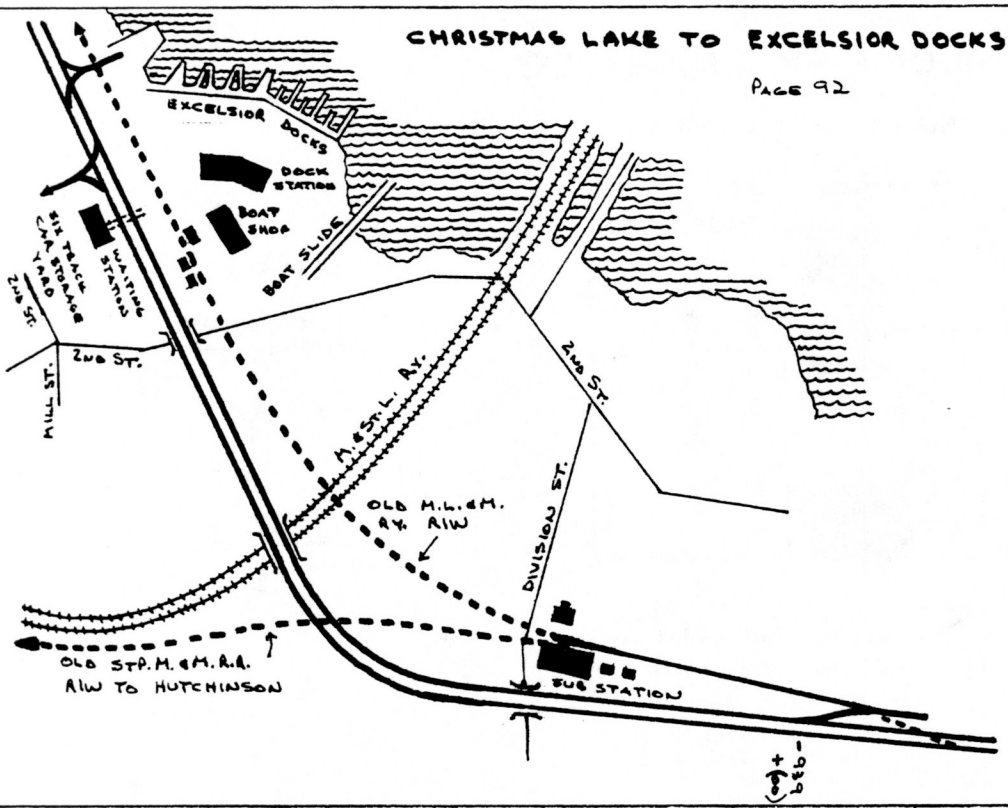
PAGE 91



LAKE MINNETONKA DIVISION — TRACKAGE DETAILS - 2

CHRISTMAS LAKE TO EXCELSIOR DOCKS

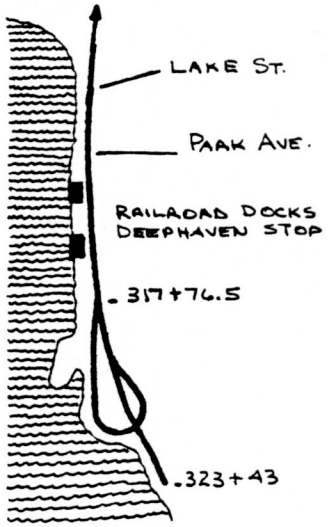
PAGE 92



DEEPHAVEN LOOP

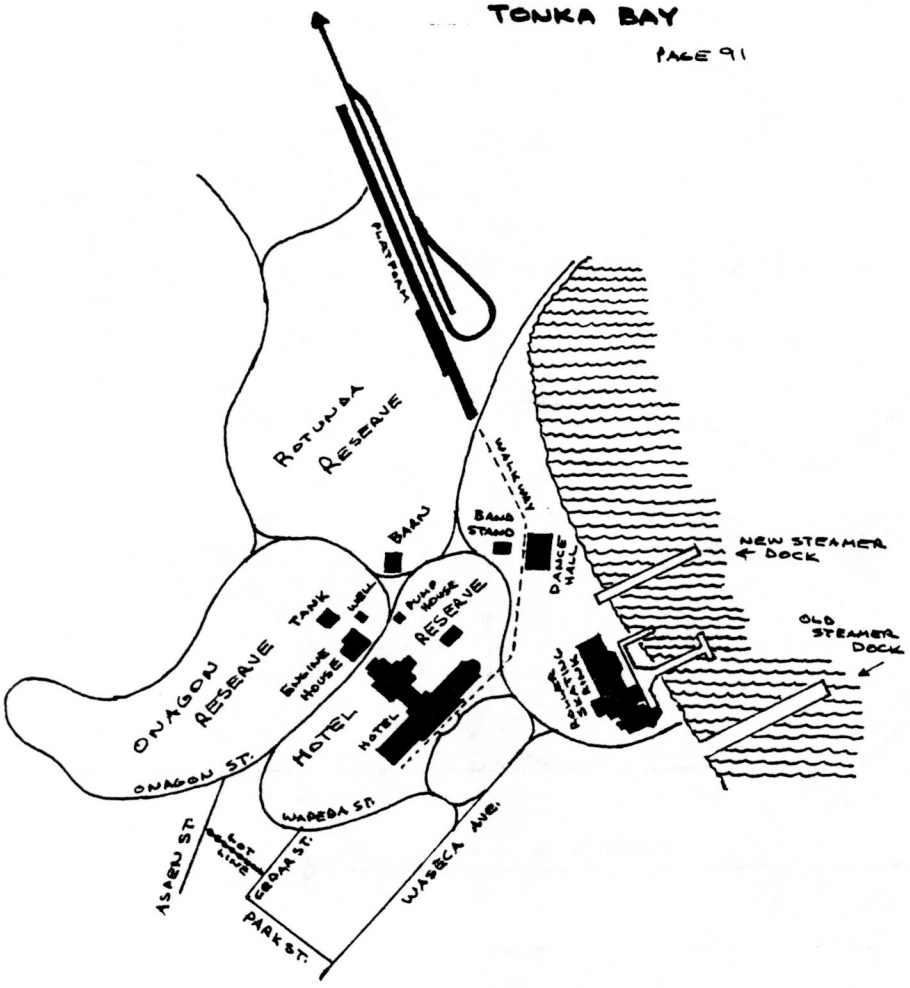
PAGE 93 (6)

DEEPHAVEN JCT. = 0+00
(M&St.L. RY. CROSSING = 140+08)



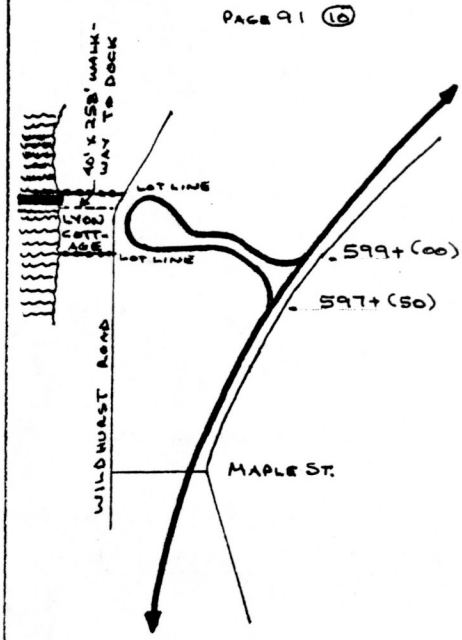
TONKA BAY

PAGE 91



WILDHURST LOOP

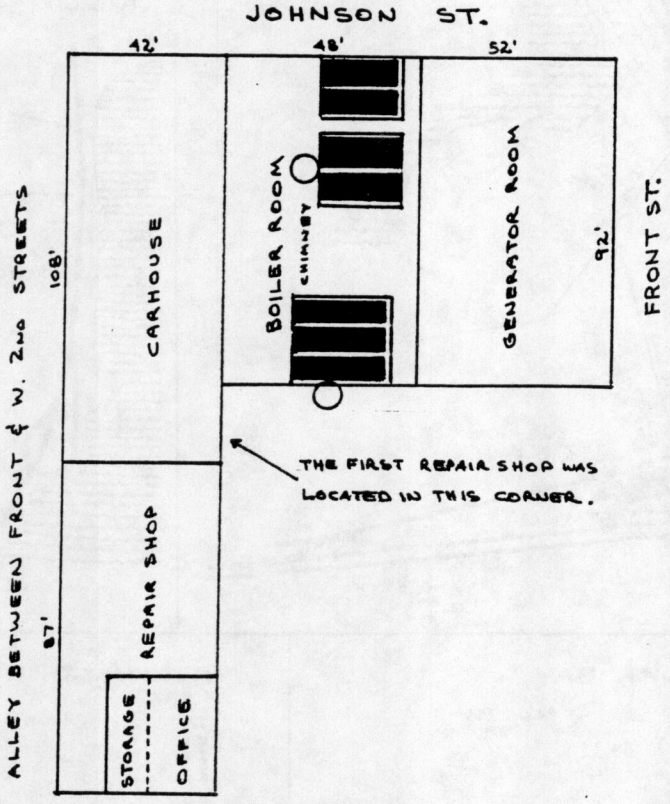
PAGE 91 (10)

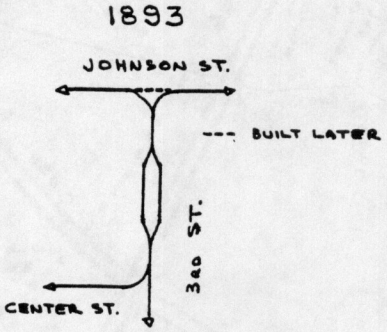


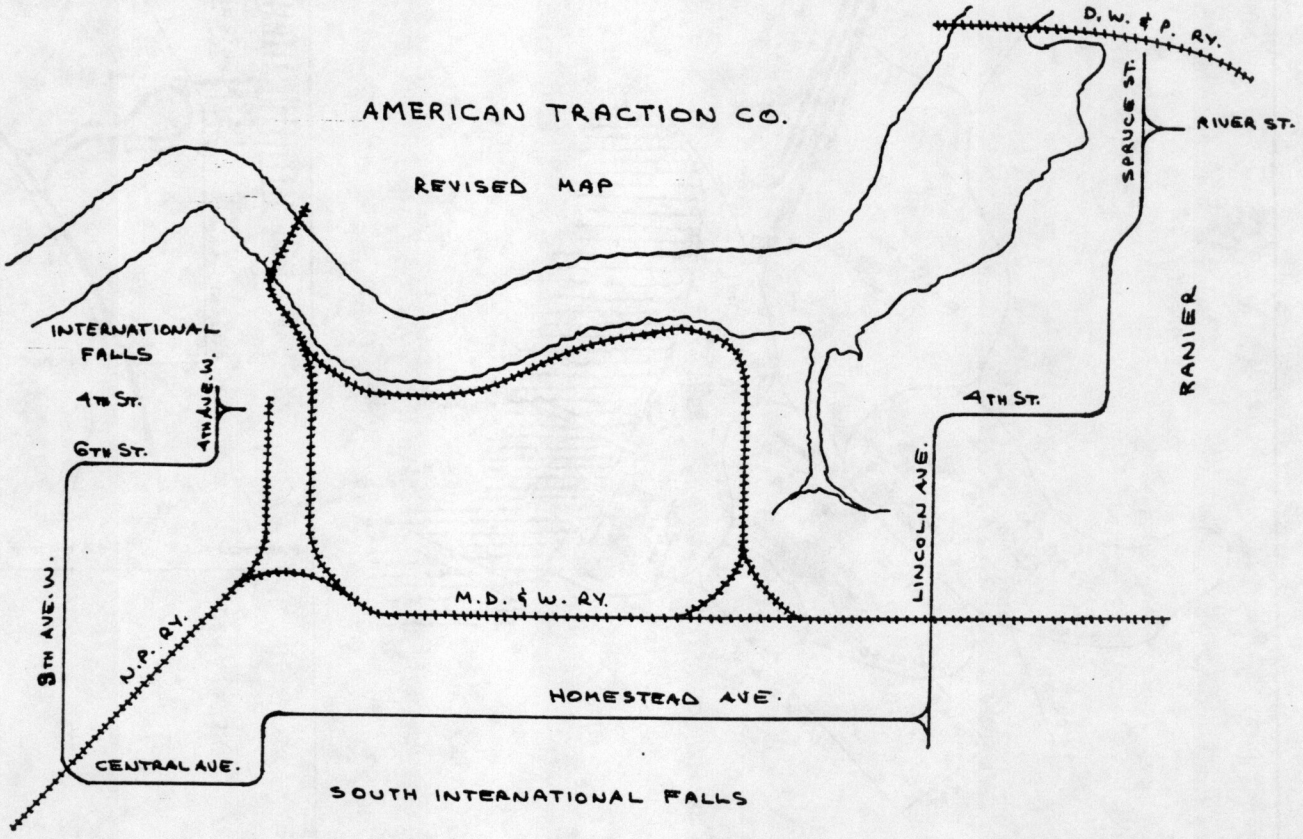
MANITOU JCT. 1048+45 = 563+41

WINONA RY. & LIGHT CO.

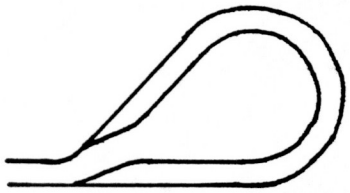
CARHOUSE & POWERHOUSE







ST. PAUL CITY RY.

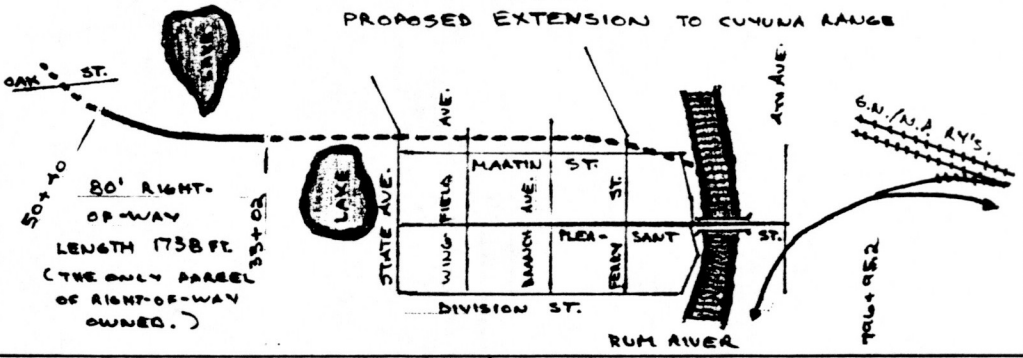


PHALEN PARK LOOP

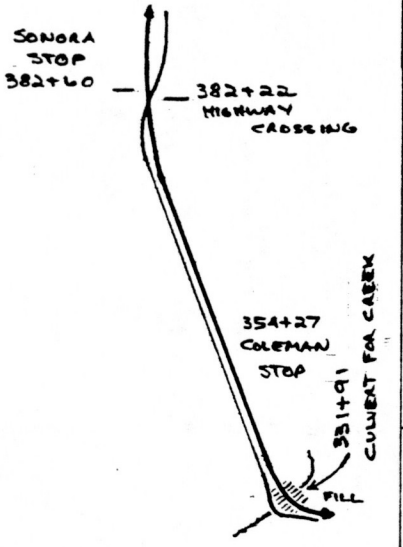
MINNEAPOLIS ANOKA & CUYUNA RANGE RY. NOVEMBER, 1929

ANOKA

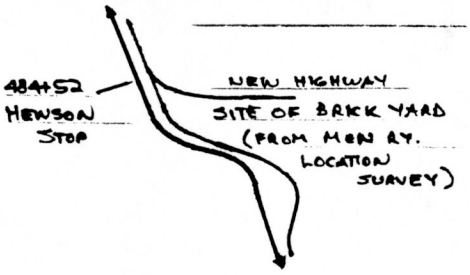
PROPOSED EXTENSION TO CUYUNA RANGE



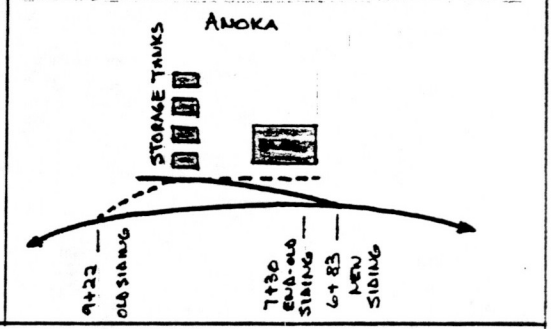
MAP CORRECTION



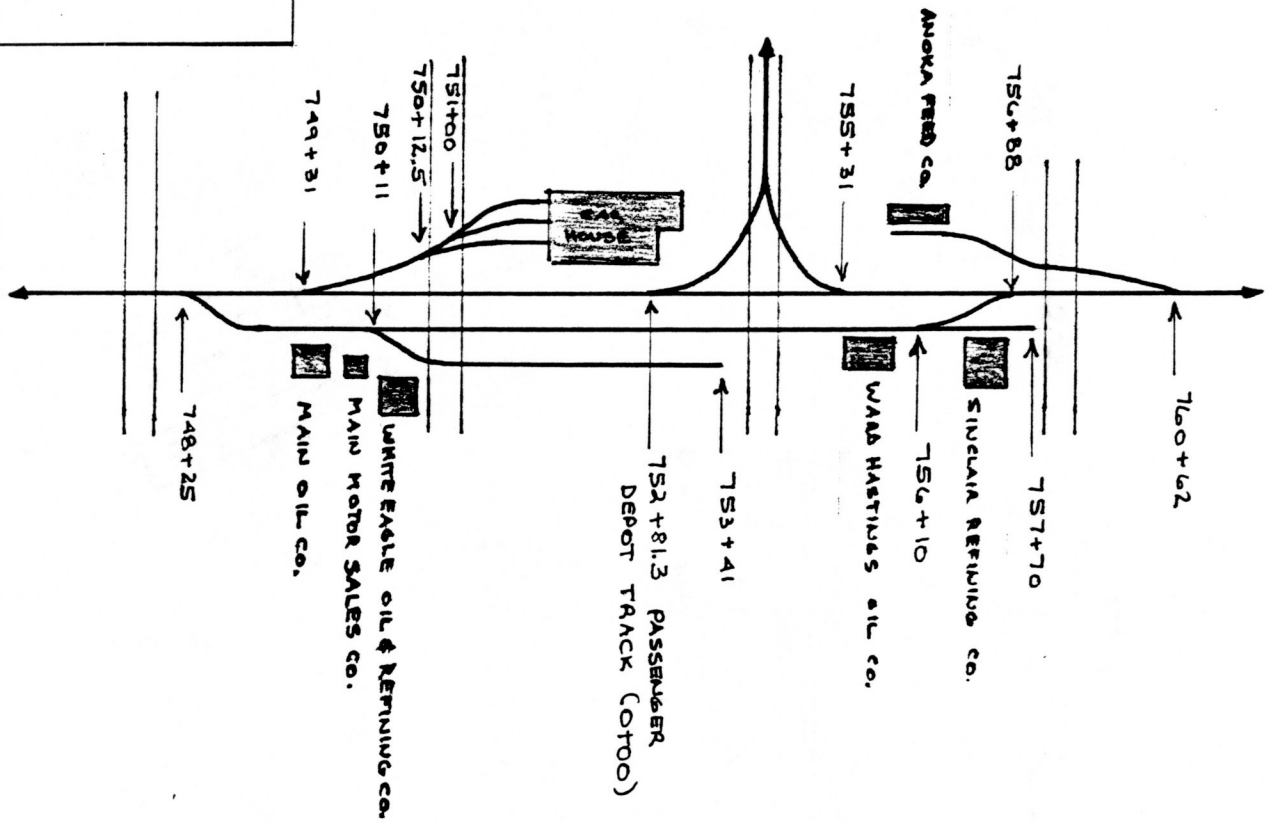
BRICK YARD SAUK LOCATION 1913-1917



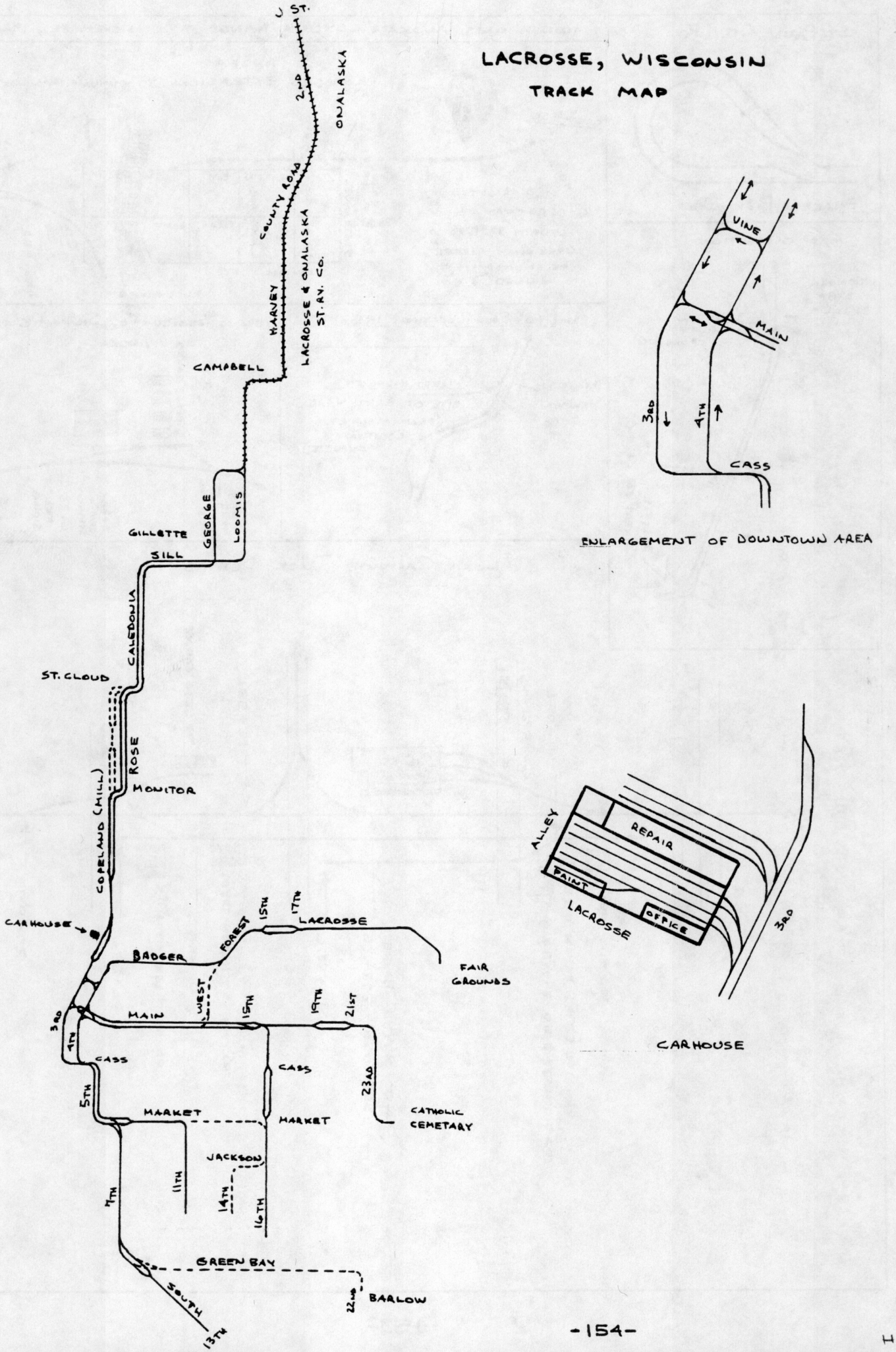
PHILLIPS PETROLEUM CO. SIDING RELOCATION



ANOKA CARHOUSE TRACK DETAILS



LACROSSE, WISCONSIN
TRACK MAP



ENLARGEMENT OF DOWNTOWN AREA

CARHOUSE

THE ELECTRIC RAILWAYS OF MINNESOTA

by Russell L. Olson

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Items designated by [ ] refer to 1990 *SUPPLEMENT*

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